TPS Steam into Science Grade K

TPS Steam into Science Grade K Executive Summary

Section 1. Science-Related Texas Essential Knowledge and Skills (TEKS) and English Language Proficiency Standards (ELPS) Alignment

Grade	TEKS Student %	TEKS Teacher %	ELPS Student %	ELPS Teacher %
Grade K	100%	100%	100%	100%
Grade 1	100%	100%	100%	100%
Grade 2	100%	100%	100%	100%

Section 2. Instructional Anchor

- The materials are designed to strategically and systematically integrate scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS.
- The materials anchor some the learning in phenomena and problems as the key lever for driving learning and student mastery of disciplinary knowledge and skills.

Section 3. Knowledge Coherence

- The materials are somewhat designed to build knowledge systematically, coherently, and accurately.
- The materials provide some educative components to support teachers' content and coherence knowledge.

Section 4. Productive Struggle

- The materials provide some opportunities for students to engage in productive struggle through sensemaking that involves reading, writing, thinking, and acting as scientists and engineers.

Section 5. Evidence-Based Reasoning and Communicating

- The materials somewhat promote students' use of evidence to develop, communicate, and evaluate explanations and solutions.
- The materials provide some teacher guidance to support student reasoning and communication skills.

Section 6. Progress Monitoring

- The materials include a variety of TEKS-aligned and developmentally appropriate assessment tools.
- The materials include some guidance that explains how to analyze and respond to data from assessment tools.

- The assessments are somewhat clear and easy to understand.

Section 7. Supports for All Learners

- The materials provide some guidance on fostering connections between home and school.
- The materials include some listening, reading, writing, and speaking supports to help Emergent Bilinguals meet grade-level science content expectations.
- The materials include some variety of research-based instructional methods that appeal to a variety of learning interests and needs.
- The materials include some guidance, scaffolds, supports, and extensions that maximize student learning potential.

Section 8. Implementation Supports

- The materials include year-long plans with some practice and review opportunities that support instruction.
- The materials include classroom implementation support for teachers and administrators.
- The materials provide implementation guidance to meet variability in program design and scheduling.

Section 9. Design Features

- The visual design of materials is somewhat clear and easy to understand.
- The materials are not designed to engage and support student learning with the integration of digital technology.
- The digital technology or online components are not developmentally and grade-level appropriate and do not provide support for learning.

Section 10. Additional Information

- The publisher submitted the technology, price, professional learning, and additional language supports.

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Indicator 2.1

Materials are designed to strategically and systematically integrate scientific and engineering practices, recurring themes and concepts, and grade-level content outlined in the TEKS.

1	Materials provide multiple opportunities for students to develop, practice, and demonstrate mastery of grade-level appropriate scientific and engineering practices as outlined in the TEKS.	M
2	Materials provide multiple opportunities to make connections between and within overarching concepts using recurring themes.	M
3	Materials strategically and systematically develop students' content knowledge and skills as appropriate for the concept and grade level as outlined in the TEKS.	M
4	Materials include sufficient opportunities, as outlined in the TEKS, for students to ask questions and plan and conduct classroom, laboratory, and field investigations and to engage in problem-solving to make connections across disciplines and develop an understanding of science concepts.	M

Meets| Score 4/4

The materials meet the criteria for this indicator. Materials are designed to strategically and systematically integrate scientific and engineering practices, recurring themes and concepts, and grade-level content outlined in the TEKS.

Materials provide multiple opportunities for students to develop, practice, and demonstrate mastery of grade-level appropriate scientific and engineering practices as outlined in the TEKS. Materials provide multiple opportunities to make connections between and within overarching concepts but lack the use of recurring themes. Materials strategically and systematically develop students' content knowledge and skills as appropriate for the concept and grade level outlined in the TEKS. Materials include sufficient opportunities, as outlined in the TEKS, for students to ask questions and plan and conduct classroom, laboratory, and field investigations and to engage in problem-solving to make connections across disciplines and develop an understanding of science concepts.

Evidence includes but is not limited to the following:

Materials provide multiple opportunities for students to develop, practice, and demonstrate mastery of grade-level appropriate scientific and engineering practices as outlined in the TEKS.

- Materials provide opportunities for students to practice grade-level appropriate scientific practice. Examples in the *Learn By Doing STEAM Activity Book* include: In Chapter 2, Activity 2, students experiment with light and shadows. In Chapter 3, Activity 1, students explore force and motion with a ramp. In Chapter 7, students observe and predict the weather. In "Science Is a Verb," a lesson is found in the *Teacher Textbook* where students evaluate how some plants adapt to change better using inquiry. Also, students use scientific practices to conduct a descriptive investigation, collect observations and measurements, and analyze data to derive meaning.
- Materials allow students to practice grade-level appropriate engineering practices in the *Learn By Doing STEAM Activity Book*. In Chapter 1, Activity 6, students use water and sand to try to

build the tallest sand castle. In Activity 4, students design a sunshade. In Chapter 3, Activity 5, students design and build models of playgrounds. Helicopter construction. This is an example STEM project. Students follow the DAPIC process described in the teacher guide on page 116;. Students Define, Assess, Plan, Implement, and Communicate. Students use grade-level appropriate scientific and engineering practices. Once students learn "what the magnet sticks do," they modify the construction materials so that they can pick them up and haul them to a remote construction site. They draw their flight path on a room map so they can experience straight, curved, and zigzag lines. The construction materials are placed in an open-sided box with toilet paper across the top, simulating fog at the pick-up site. A classmate has to use light signals to direct the pilot for the right maneuvers to pick up the materials. Students are asked how they think the various materials will respond to heat and cold, but these experiments are not conducted, only discussed. Students continue to experiment with magnets in the arts projects that follow and, within those projects, apply scientific practices. For example, pairs of students complete the experiment from the story and compare actual results to those in the story.

- Materials provide opportunities for students to demonstrate mastery of grade-level appropriate SEPs as outlined in the TEKS. For example, Online Library – Assessment tools – Assessment generator – TEKS 1 A and B – Students complete test questions for individual TEKS by breakout. Teachers are provided with leveled questions by TEKS/performance expectation level. Teachers can assign questions to individual students or the whole class. The content can be for one performance expectation or a selection and can be projected in class and or saved as a pdf personalized assessment quiz/test. Students can practice applying their SEPs knowledge.
- Online Library – Assessment tools – Interactive software tool – TEKS 1 A and B – Students complete test questions for individual TEKS. This is a web-based tool and houses assessments for TEKS. Teachers can add their own content. The tool automates the grading of all multiple-choice questions. There are questions for all TEKS. The program does purposefully include content for below-, at-, and above-grade-level students.
- Materials provide opportunities for students to develop, practice, and demonstrate mastery of grade-level scientific practices. The *Learn Doing Steam Activity Reader Edition* introduces the scientific method and design engineering process. In Chapter 2, students apply the scientific method to the activity. They observe, hypothesize, test, discuss results, and come to a conclusion. The *Learn By Doing STEAM Activity Book Teacher Edition* has an introduction section describing the scientific method that provides information for the teachers on how to implement this practice in the classroom. Each activity that uses the scientific method requires significant teacher direction, monitoring, and guidance of the students, which is not explicitly stated, while also allowing them to explore and then communicate with their class. The process for the scientific method has been simplified for this age group together with the investigations. the scientific method is referred to heavily throughout the materials.

Materials provide multiple opportunities to connect between and within overarching concepts using the recurring themes.

- Materials allow students to use recurring themes to make connections between and within overarching concepts through activities referencing patterns, systems, structures, and functions to enable recurring themes. For example, activities have idea boxes in the *Learn by Doing STEAM Activity Book* prompting students to connect to what they think will happen. Additionally, materials guide the teacher to encourage student-made connections. For example,

in Chapter 7, “Spot the Weather Dog,” the idea box has the teacher ask questions about patterns. The recurring theme of patterns frequently appears throughout activities.

- Materials include opportunities to make connections to overarching concepts. For example, in the *Learn By Doing STEAM Activity Reader Teacher Edition*, energy is introduced in Chapter 2 through light and shadow. Energy is presented again in Chapter 3 and references work and force. On page 38, a reference to how the Sun’s energy melts ice cubes. Energy recurs in Chapter 6. Also, the *Teacher Textbook* references that students will learn that living things are composed of different parts with different functions. Students will learn about plants and animals and their main parts. Again in the Student Textbook, there is a lesson called “What is day and night?” followed by the lesson “Patterns” and ending the concepts with the lesson “In The Sky.” This theme is continued in the STEAM Activity Guide. “Day and Night” is revisited in the first of two art projects, and in the second art lesson, “In the Sky” is the focus. “Day and Night” is reviewed again in the art project. Objects in the sky knowledge are used in the word wall lesson.
- Materials include overarching concepts that connect. For example, in the Scope and Sequence, the five core areas are identified as Scientific and Engineering Practices, Matter and Energy, Force, Motion and Energy, Earth and Space, and Organisms and Environments.

Materials strategically and systematically develop students’ content knowledge and skills as appropriate for the concept and grade level as outlined in the TEKS.

- Materials provide guidance in developing content knowledge systematically. For example, in the Learn By Doing Teacher’s Guide, there is an “Essential Content Guide” that shows how the program is structured and gives an overview of the sequence of units, showing how the program systematically presents content connecting to concepts for students to make connections between content areas throughout the program. The lessons build on students engaging their prior knowledge for the new lesson. For example, the lesson “How can a magnet move paper clips?” helps build student background knowledge before moving on to the lesson about magnets.
- Materials support teachers in developing student content, concepts, and skills by giving them resources and cues at varying points in the lessons and units. For example, a lesson on Matter in the *Learn By Doing STEAM Activity Reader Book Teacher Edition* contains Idea Boxes that explain, describe, and make connections to develop conceptual understanding. In the Learn By Doing teacher edition, the materials strategically develop students’ content knowledge and skills for Kindergarten graders. Materials in the *Teacher Textbook* lesson plan on Energy guide teachers to enhance student learning using scaffolding information, background text, common misconceptions, teacher tips, and support suggestions for special populations. The *Teacher Textbook* demonstrates how the content is designed to develop and build student content knowledge with a Scope and Sequence explaining how the program is structured, showing how students can make connections across units.

Materials include sufficient opportunities, as outlined in the TEKS, for students to ask questions and plan and conduct classroom, laboratory, and field investigations and to engage in problem-solving to make connections across disciplines and develop an understanding of science concepts.

- Materials provide opportunities for questioning and for students to plan and conduct classroom, laboratory, and field investigations. For example, in the *Teacher Textbook* are stories the teacher

reads of the investigations done by a fictional class/teacher. The students then base their thoughts on the fictional class. The students are not investigating, designing, or planning. Then, in Magnets, there is a story for experience, and then questions are asked to the class. In the *Learn by Doing STEAM Activity Reader Book*, idea boxes are situated throughout the text as points of discussion that provide situations for students to generate questions related to the chapter content. An example is the *Learn by Doing STEAM Activity Reader Book* – Idea Box 4. Guidance on using the idea boxes can be found in the teacher guidance section on Comprehension. The main premise found in the *Learn by Doing STEAM Activity Reader Book Teacher Edition* introduction section is for the students to come up with a hypothesis based on questions that the students have. The discussion stage generates questions and answers based on the students' experience from the investigation.

- Materials include opportunities for students to solve problems, make connections across disciplines, and develop science concepts. In the *Teacher Textbook*, students have a math challenge. There is a word problem that students are supposed to draw and decide how many balloons there are altogether. Also, in the science *Teacher Textbook*, students are asked to provide evidence to show that air is all around us. Students use a device such as a windsock, ribbon, or pinwheel to demonstrate that the wind is the movement of air. Next, they draw a picture to show what happened.
- The STEAM Activity Guide also includes a Scientific and Engineering Practice Project that allows students to plan and conduct an open-ended engineering project. In Activity 3, in the *Learn by Doing STEAM Activity Reader Book Teacher Edition*, there are opportunities for the students to problem-solve. They are asked to record the numbers of pill bugs and see if they increase or decrease and what this indicates (they have or have not met some of the basic needs of the pill bugs). Based upon their observations of the pill bugs, they are asked what the pill bug habitat's living and nonliving parts are.
- The *Learn By Doing STEAM Activity Reader Book Teacher Edition* includes opportunities for students to engage in problem-solving, make connections across disciplines, and develop an understanding of science concepts. For example, kindergarten students make connections between science and math when they use mathematical skills to present information about growing plants in a graph. Students determine how many animals belong in each of three or four groups. For example, kindergarten students connect science and literacy after studying "My Reused Trash." Students identify and explain the problem, propose solutions, and make predictions.
- The materials allow students to practice SEPs by designing solutions and investigating the efficiency of the design. The activity in the *Teacher Textbook* asks students to identify problems, design and build and test prototypes, and record observations to determine which model works best. The materials provide opportunities for problem-solving in several units across the grade level. For example, the materials present students with a challenging engineering design process through the text in Learn By Doing. The materials also provide criteria with which to evaluate their prototype as well. For example, In Chapter 6, the materials provide multiple opportunities for students to apply their understanding of defining a problem, generate solutions based on criteria and within constraints, and conduct a fair test to evaluate their prototype. The STEAM project guide provides a SEPs project which includes student-led activities and problem-solving.

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Indicator 2.2

Materials anchor the learning in phenomena and problems as the key lever for driving learning and student mastery of disciplinary knowledge and skills.

1	Materials embed phenomena and problems across lessons to support students in constructing, building, and developing knowledge through authentic application and performance of scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS.	PM
2	Materials intentionally leverage students' prior knowledge and experiences related to phenomena and engineering problems.	M
3	Materials clearly outline for the teacher the scientific concepts and goals behind each phenomenon and engineering problem.	M

Partial Meets | Score 2/4

Materials partially meet the criteria of this indicator. Materials somewhat anchor the learning in phenomena and problems as the key lever for driving learning and student mastery of disciplinary knowledge and skills.

Materials partially embed phenomena and problems across lessons to support students in constructing, building, and developing knowledge through authentic application and performance of scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS. Materials intentionally leverage students' prior knowledge and experiences related to phenomena and engineering problems. Materials clearly outline for the teacher the scientific concepts and goals behind each phenomenon and engineering problem.

Evidence includes but is not limited to:

Materials embed phenomena and problems across lessons to support students in constructing, building, and developing knowledge through authentic application and performance of scientific and engineering practices, recurring themes and concepts, and grade-level content as outlined in the TEKS.

- Materials embed some phenomena in some lessons to support students in constructing, building, and developing knowledge. For example, in the Teacher Textbook, the project-based learning section, the activities on Earth and Space identify the phenomena by making weather observations and patterns over time. However, the Learn by Doing STEAM Activity Reader Book does not have the phenomena and problems embedded across lessons. The students are not constructing, building, and developing knowledge when looking through the activities on pages 21, 29, and 42. The STEAM Activity Guide Teacher Edition provides a Vignette of each Instructional Segment. It provides guiding questions and anchoring phenomena. In the Force, Motion, and Energy segment, The Anchoring Phenomena are "photographs related to light, including shadows, reflections, light sources, etc." The book shows one photo of fall trees reflecting on the water and one lighthouse.
- Materials provide opportunities for students to develop, evaluate, and revise their thinking as they figure out phenomena and define problems. In the Teacher Textbook *Kindergarten Science*, a project-based lesson centers around phenomena. Students will come up with a problem and

design solutions. The ideas presented for problems to be solved are not phenomena-created ideas. They are problems presented by the teacher.

Materials intentionally leverage students' prior knowledge and experiences related to phenomena and engineering problems.

- Materials intentionally leverage students' prior knowledge and experiences. For example, in the Learn by Doing STEAM Activity Reader Book, in Chapter 10, Mystery Plants, they ask students in the idea boxes about what they think will happen in different scenarios. They need to have prior knowledge to predict. In the Learn By Doing STEAM Activity Reader Teacher's Guide, the text suggests having students bring photos of their parents when they were children to discuss how similar they look to their parents while learning about living things. In the Teacher Textbook Kindergarten chapter on energy, there is information on how to encourage students to use their prior knowledge. Students should know how to use their five senses to observe the world.
- Materials provide scaffolding information to accommodate different entry points to learning phenomena. It lists background information that students should know and states that if students need this background knowledge, the teacher will give them opportunities to gain it before commencing the standard.

Materials clearly outline for the teacher the scientific concepts and goals behind each phenomenon and engineering problem.

- Materials guide the teacher on the goals behind each phenomenon. In the Learn by Doing STEAM Activity Reader, there are objectives that teachers have listed that are expected to be met by following the lesson. The textbook lessons contain an objective that outlines the scientific goals for each task. In the Air lesson, the objective states, "Students will demonstrate that air is all around us and observe that wind is moving."
- Materials guide the scientific concepts behind lessons. For example, the Teacher Textbook lessons contain a section called "The Science" that outlines the scientific concepts for each lesson. The Air lesson lists the characteristics and science behind air and wind. The Teacher Program Guide offers explanations and reasoning, starting with the order in which the teacher should deliver the materials, continuing with TEKS and vertical alignment, assessment, and concluding with an explanation of "How the Content Supports Teachers."

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Indicator 3.1

Materials are designed to build knowledge systematically, coherently, and accurately.

1	Materials are vertically aligned and designed for students to build and connect their knowledge and skills within and across units and grade levels.	M
2	Materials are intentionally sequenced to scaffold learning in a way that allows for increasingly deeper conceptual understanding.	M
3	Materials clearly and accurately present grade-level-specific core concepts, recurring themes and concepts, and science and engineering practices.	M
4	Mastery requirements of the materials are within the boundaries of the main concepts of the grade level.	PM

Partial Meets | Score 3/6

The materials partially meet the criteria for this indicator. Materials are somewhat designed to build knowledge systematically, coherently, and accurately.

Materials are vertically aligned and designed for students to build and connect their knowledge and skills within and across units and grade levels. Materials are intentionally sequenced to scaffold learning in a way that allows for an increasingly deeper conceptual understanding. Materials clearly and accurately present grade-level-specific core concepts, recurring themes and concepts, and science and engineering practices. Mastery requirements of the materials are sometimes within the boundaries of the main concepts of the grade level.

Evidence includes but is not limited to:

Materials are vertically aligned and designed for students to build and connect their knowledge and skills within and across units and grade levels.

- Materials are designed for students to build and connect their knowledge and skills within and across units. For example, in the Learn By Doing STEAM Activity Reader Book - Teacher Edition, when looking at a specific TEKS, Earth and Space, regarding Earth materials, Kinder explores shapes, color size, and texture and makes observations as a foundation for the next grade level. Also, in the STEAM Activity Guide, "Amelia Rose Explores Earth and Space," the teacher reads through the story and activity. The student is introduced to vocabulary and describing words for the natural world and its properties throughout this kinder activity.
- Materials are aligned and provide connections to prior knowledge. Materials offer a K-8 program and provide a grade-level vertical alignment document demonstrating how students build and connect knowledge across grade levels. The document titled "Horizontal and Vertical Alignment Information" states, "As students progress within each grade, the STEAM storybooks are the first level in a series of TPS curricular materials, horizontally aligned to allow the students to engage in a curriculum that builds on knowledge and skills aligned with the Texas Essential Knowledge and Skills."
- Materials build knowledge within each chapter. Examples include the Learn by Doing STEAM Activity Reader Books, which begin with the storyline, idea boxes for discussion, and activities section. Science knowledge is also built as students move throughout the chapters. The *STEAM*

Storybooks build content knowledge of energy and force in this manner. Chapter 2 introduces the concept of energy and its different forms with idea box 1. The students investigate light and sound energy with idea box 2 and Activities 3 and 5. In Chapter 3, students revisit the concept of energy and its role in creating forces that do work. Energy is investigated in idea boxes 1 and 3 and Activities 1 and 5. In Chapter 4, magnetism as a force is introduced, and in Activity 2, students explore magnets. The energy concept recurs in Chapter 6, regarding the energy emitted by the Sun, in idea box 1.

- Materials provide vertical content knowledge in the scaffolding information at the beginning of each chapter. Examples include scaffolding information in the Teacher's Guide Grade K, which includes what most kindergarten students should know and future TEKS that will build upon the grade K standard through grade 5.
- Materials present content in a way that builds complexity within and across units. In the chapter on Matter and Energy, students begin by exploring objects and finding different ways to group them. In the Teacher Edition, students sort objects into bigger and smaller ones. The TEKS for each grade level are listed in the Teacher Program Guide - Grades K-8 Science.

Materials are intentionally sequenced to scaffold learning in a way that allows for increasingly deeper conceptual understanding.

- Materials include a concrete progression before abstract reasoning when presenting concepts that allow for an increasingly deeper conceptual understanding. Examples include, In the STEAM Learn By Doing Chapter 2, Activity 3, students experiment with light to examine the behavior of a light source before drawing a representation of their results in the book. In the STEAM Learn By Doing Chapter 2, Activity 5, students explore how heat energy can change water from a solid to a liquid and then a gas before drawing a representation of their results in the book. In the Learn by Doing Steam Activity Reader, students learn about the plant life cycle during a read-aloud. The teacher stops and asks questions that are found within the story. The instructions include information for the teacher to buy fast-growing seeds so that students can observe the life cycle. Students will apply their knowledge to a tree and draw and label a plant. In the Teacher's Guide, the chapter on organisms and the environment begins with students naming different parts of plants and animals. Students will be able to describe how different plant structures help the plant function.
- Materials are intentionally sequenced to scaffold learning in a way that allows for deeper understanding. Examples include, in the Learn By Doing STEAM Activity Reader Book - Teacher Edition, Chapter 10, the Mystery Plants unit, scaffolding is happening throughout. At the beginning of the unit, the teacher reads the story, then discusses the idea boxes and mind mapping. Then the activities show the progression of understanding as the students do hands-on activities and build knowledge of concepts like inherited traits in plants. In the Teacher Textbook, prior knowledge is activated; on page 1, in the Tools unit, the text states that "this standard builds upon experiences and background that students may have had for more common tools."
- Materials also provide scaffolding to differentiate. Examples include, in the Learn By Doing STEAM Activity Reader Book - Kindergarten Teacher Edition, Chapter 10, "The Mystery Plants," the information is scaffolded to deepen with complexity through the idea boxes. In idea box 1, the students mind map the different types of plants that produce seeds. In idea box 2, the students mind map how plants resemble their parents. In idea box 3, the students are asked what will happen to the seeds that were accidentally blown out of the window in the story. In

idea box 4, the students discuss the different parts of a plant and then are taken outside to look at plants so they can see the structures of living plants.

Materials clearly and accurately present grade-level-specific core concepts, recurring themes and concepts, and science and engineering practices.

- Materials clearly and accurately present grade-level-specific core concepts. In the Learn by Doing STEAM Activity Reader, Chapter 2, students learn grade-level specific core content about light, energy, and shadows, as aligned to the TEKS. Also, in Activity 4, Earth's Materials, in the teacher guidance, the teacher is instructed to start asking questions using core concept vocabulary after students are given materials. Background and misconceptions are listed in every chapter to prevent scientific inaccuracies. For example, in the Teacher Textbook, students learn that the sun does not go up and down but is stationary and that the earth is rotating.
- Materials clearly and accurately present engineering concepts. In the STEAM Activity Guide, examples include students designing and creating their engineering practice projects. In the Learn by Doing STEAM Activity Reader, Chapter 1, "Put out that Fire," Activities 1 and 5, students use their knowledge of the content to complete the activities. They then move on to Activity 6 and use the engineering design process to build a playground model. Also, in the Learn By Doing STEAM Activity Reader Book, in Chapter 4, "Lia's Lost Bracelet," students use engineering.

Mastery requirements of the materials are within the boundaries of the main concepts of the grade level.

- Materials sometimes suddenly introduce mastery requirements within lessons. In the traditional lesson on Energy, the key words are presented to students after some science reading about light, sound, and heat. None of these include the word friction or weight, which are not grade-level appropriate words, and then when students move into the Focus Questions section, the last question asks students to “Identify the forms of energy from the list below by circling them.” and the words friction and weight are listed.
- Materials are only sometimes within the boundaries of the grade level. For example, the Learn By Doing STEAM Activity Reader includes a rubric for activities using the scientific method. One of the requirements, according to the rubric, is mastery. The scientific method is outside of the mastery requirements of kindergarten and not included in their current TEKS. Also, in the assessment database and benchmark assessments for grade level mastery, a question provided for "at level" kindergarten students asks about ecosystems and abiotic factors, physical factors, and biotic factors. This vocabulary is not within grade level TEKS for kindergarten.

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Indicator 3.2

Materials provide educative components to support teachers' content and knowledge coherence.

1	Materials support teachers in understanding the horizontal and vertical alignment guiding the development of grade-level content, recurring themes and concepts, and scientific and engineering practices.	PM
2	Materials contain explanations and examples of science concepts, including grade-level misconceptions to support the teacher's subject knowledge and recognition of barriers to student conceptual development as outlined in the TEKS.	M
3	Materials explain the intent and purpose of the instructional design of the program.	M

Partial Meets | Score 3/6

The materials partially meet the criteria for this indicator. Materials provide some educative components to support teachers' content and knowledge coherence.

Materials provide some support to teachers in understanding horizontal and vertical alignment guiding the development of grade-level content, recurring themes and concepts, and scientific and engineering practices. Materials contain explanations and examples of science concepts, including grade-level misconceptions to support the teacher's subject knowledge and recognition of barriers to student conceptual development as outlined in the TEKS. Materials explain the intent and purpose of the instructional design of the program.

Evidence includes but is not limited to:

Materials support teachers in understanding the horizontal and vertical alignment guiding the development of grade-level content, recurring themes and concepts, and scientific and engineering practices.

- The introductory materials in the Teacher Textbook state, "Science Concepts, scientific practices, and engineering are introduced in this first component," in reference to the *Learn by Doing* Activity Reader. However, neither the Teacher Textbook nor the *Learn by Doing* Activity Reader indicates how or when scientific practices or overarching concepts are addressed in each section or within each topic. The inclusion of the Horizontal Alignment Chart, the TEKS 1-5 Content Guides, and the update of the pacing guide provide a document that shows when scientific and engineering practices and recurring themes are addressed. This provides minimal support to the teacher in understanding how this or how content builds horizontally or vertically.
- The Program Guide somewhat supports teachers with understanding the vertical and horizontal alignment of the program. It references the use of a storybook "to provide an introduction to in a personally relevant manner." The STEAM Storybook is followed by the activities section. Materials say "These activities build upon communication, creativity, critical thinking, and collaboration." Materials state, "As students progress through the grade levels, the STEAM storybooks provide opportunities to develop knowledge and skills gradually built through vertical alignment through the TEKS. The description in the Program Guide does not fully

support teachers, as it does not reference specific learning. In the *Learn By Doing STEAM* Activity Reader Book, Teacher Edition, there are several documents that, when used together, provide specific learning.

- Materials include some guidance that supports teachers in understanding how new learning connects to previous and future learning across grade levels in the Scaffolding Information within the lesson. In the beginning of the Traditional lessons, the Scaffolding Information section provides some information on knowledge students should already have, then lists the TEKS for the previous and future grade levels. Listing the TEKS does not provide enough guidance about connection to future learning. Materials provide minimal guiding documents or information that support teachers in understanding how new learning connects to previous and future learning across grade levels.
- The instructional materials include some guiding documents that support teachers in understanding how new learning connects to previous and future learning across grade levels. For example, The *Learn By Doing STEAM* Activity Reading includes an “Essential Content Guide” that describes what science, math, and ELAR concepts are taught in each unit. There is a horizontal and vertical alignment information document in the Online Library for Teacher Support. This provides general information and does little to help teachers understand how their specific grade-level content connects to prior or future learning.

Materials contain explanations and examples of science concepts, including grade-level misconceptions to support the teacher's subject knowledge and recognition of barriers to student conceptual development as outlined in the TEKS.

- Materials contain explanations and examples of science concepts for teachers. For example, in the Teacher Textbook, "The Science" section of the lesson is a synopsis of what students have learned and will learn. Background and Preconceptions sections are also in the lessons to help teachers understand before starting the activities. The background information for teachers provides explanations and examples of science concepts. In the Teacher Textbook, before each experiment, the materials offer a section titled "Background and Misconceptions." In the experiment, "How Can a Magnet Move Paper Clips?" the materials provide background information about magnets and their forces.
- Materials contain explanations for teachers on grade-level misconceptions to support teachers’ subject knowledge. For example, in the Teacher Textbook, the Common Misconceptions section helps the teacher "know better." Background and Preconceptions sections are also in the lessons to help teachers understand before starting the activities. The "Magnets" lesson contains a section titled "Common Misconceptions" that states, "The word magnetic can confuse. A magnetic material is a material that can be attracted to a magnet. Magnets are magnetic, but not all magnetic materials are magnets."
- Materials guide teachers on the recognition of barriers to student conceptual development. In the Teacher Textbook, "Scaffolding" describes their expectations for the future in science with the concept.

Materials explain the intent and purpose of the instructional design of the program.

- Materials do provide a purpose or rationale for the instructional design. The Teacher Program Guide in the Support Notes for Teachers states that the content scaffolds as the characters go alongside the diverse students. The Teacher Program Guide K-8, under the section Support Notes for Teachers, gives information about the rationale of how the program was designed. For

example, "The Steam Storybook was designed with two key purposes: first to teach science through the prism of STEAM, science, technology, engineering, and math as an approach more relevant to the lives of students."

- Materials explain the intent of the instructional design of the program. The Teacher Program Guide there describes the philosophy of science teaching and learning. They explain the publisher's philosophy that we learn best by doing and the importance of scientific understanding for all students. They also explain the science teacher's role in developing critical thinking, problem-solving, and an appreciation of the scientific process. The Teacher Program Guide describes the Teaching Pedagogy - Storytelling and STEAM. The guide references the research on structure strategies and more information on why teaching science through storytelling is important.

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Indicator 4.1

Materials provide opportunities for students to engage in productive struggle through sensemaking that involves reading, writing, thinking, and acting as scientists and engineers.

1	Materials consistently support students' meaningful sensemaking through reading, writing, thinking, and acting as scientists and engineers.	M
2	Materials provide multiple opportunities for students to engage with grade-level appropriate scientific texts to gather evidence and develop an understanding of concepts.	PM
3	Materials provide multiple opportunities for students to engage in various written and graphic modes of communication to support students in developing and displaying an understanding of scientific concepts.	M
4	Materials support students to act as scientists and engineers who can learn from engaging in phenomena and engineering design processes, make sense of concepts, and productively struggle.	M

Partially Meets | Score 2/4

The materials partially meet the criteria for this indicator. Materials provide some opportunities for students to engage in productive struggle through sensemaking that involves reading, writing, thinking, and acting as scientists and engineers.

Materials consistently support students' meaningful sensemaking through reading, writing, thinking, and acting as scientists and engineers. Materials provide some opportunities for students to engage with grade-level appropriate scientific texts to gather evidence and develop an understanding of concepts. Materials provide multiple opportunities for students to engage in various written and graphic modes of communication to support students in developing and displaying an understanding of scientific concepts. Materials support students to act as scientists and engineers who can learn from engaging in phenomena and engineering design processes, make sense of concepts, and productively struggle.

Evidence includes but is not limited to:

Materials consistently support students' meaningful sensemaking through reading, writing, thinking, and acting as scientists and engineers.

- Materials support students' meaningful sensemaking through reading, thinking, and acting as scientists and engineers. In the Learn by Doing STEAM Activity Reader, materials provide reading through storytelling, thinking through idea boxes, and acting through design and engineering pieces. There are writing prompts and opportunities for students to describe what they know or have learned. In the Student Textbook, there are writing activities. Students have opportunities to read like scientists in the Learn By Doing STEAM Activity Reader Book. Additionally, this component includes idea boxes to support the teacher in having students think like scientists and stimulate critical thinking through class discussion of the chapter texts. Following each chapter, activities allow the students to act as scientists or engineers investigating and designing engineering solutions. The activity sections also include opportunities for the students to engage in age-appropriate letter-word analysis, writing, and math. In Chapter 2, "Energy, Light and Shadows," students read and think like scientists and engineers about the topic. In Activity 3 of

the same chapter, students think and act like scientists to experiment with the behavior of a light source. In Activity 4, students think and act like engineers to design and create a sunshade. In the STEAM Activity Guide, Force, Motion, and Energy, Explore It #1, students work as engineers to create a helicopter and to read and answer questions about the experiment. In the following Describe It #2, students attach a light to the helicopter to observe how the light changes as it moves closer and farther away from the ground. They also attach a magnet to the helicopter to observe what it can and cannot pick up. Students read, think, and write to answer questions about their experiments.

- Materials provide learning activities that support students' meaningful sensemaking through reading and acting as scientists and engineers. For example, in the Learning by Doing Steam Activity Reader, students mind map the roles that light plays in children's everyday lives after hearing a story called "Shadows in the Tent." Next, the teacher explains to the students about scientists, engineers, and physicists. Students then look around the class and explore objects designed by engineers.
- The materials provide teachers with guidance on labs in the "Science is a Verb" explanation, found in the Teacher Textbook, that partially supports sensemaking. For example, the materials state, "The critical portion of any lab is to have a thorough discussion of the results and student thinking after the experiment is complete. It is suggested you take as much time as the experiment to have this discussion with students. The real learning occurs not from hands-on experiments, but from a deep discussion of the experiment while making connections to the concept they are learning." The guidance supports sensemaking by taking the lesson beyond a hands-on investigation and building conceptual knowledge through discussion.

Materials provide multiple opportunities for students to engage with grade-level appropriate scientific texts to gather evidence and develop an understanding of concepts.

- The materials sometimes provide grade-level appropriate text. However, In the traditional lesson on Energy, the key words are presented to students after some science reading about light, sound, and heat. None of these include the word friction or weight, which are not grade-level appropriate words, and then when students move into the Focus Questions section, the last question asks students to “Identify the forms of energy from the list below by circling them.” and the words friction and weight are listed. This is not grade-level appropriate scientific text, as friction is not introduced in the TEKS until grade 4 with TEKS 4.7.
- The materials provide some opportunities to engage with grade-level appropriate scientific texts. However, in the Learn By Doing STEAM Activity Read for Kindergarten, Chapter 2, Activity 5: Sound Energy, the reading instructs the teacher to “explain that vibration is a tiny movement and that sound moves as vibrations in the air.” This text is not grade-level appropriate scientific text, since students at that developmental level are very concrete learners. It’s also not grade-level appropriate as stated in the TEKS since vibrations in relation to sound energy are not introduced until grade 2, with TEKS 2.8A.
- The materials provide some opportunities to engage with grade-level appropriate scientific texts. However, in the Learn By Doing STEAM Activity Read for Kindergarten, Chapter 2, Activity 8: Vocabulary Words, students are given words to spell, sound out, etc. One of the words used is electricity. This word is not introduced in the previous activities and electrical energy is not introduced until grade 4. Exposing pre-readers to vocabulary that is tangential to the TEKS laid out for the grade level can impair students' ability to develop a solid understanding of the scientific concepts.

- The scientific text provided to students is sometimes not grade-level appropriate which can impair students ability to gather evidence and develop an understanding of a concept. In the student text, Earth's Resources section, the text discusses resources and natural resources. This text is not grade-level appropriate, as the term resource and natural resources is not introduced until grade 1.

Materials provide multiple opportunities for students to engage in various written and graphic modes of communication to support students in developing and displaying an understanding of scientific concepts.

- Materials provide multiple opportunities for students to engage in various modes of communication to display understanding. For example, in the Student Textbook Light unit, after listening to a story read by the teacher about fireflies, they think and discuss other objects that make their light, then relate it to the classroom. They are then asked to draw a picture of an object in the classroom.
- Materials provide many opportunities for displaying understanding. The Learn by Doing STEAM Activity Reader - Student Edition contains fill-in-the-blanks, open-ended questions, drawing observations and ideas, and graphs for data. There are opportunities throughout the Spot the Funny Weather Dog unit about weather. In the Learn by Doing Activity Guide, students fill in the blanks, have short answers, match, fill in tables, and graphic organizers.
- Materials provide multiple opportunities for students to communicate thinking on scientific concepts in written and graphic modes. The Student Textbook provides the Project Based Lesson, students record their observations in written form and by drawing. In the investigation called "Looking at the Sky," students draw what they see in the day and night skies. Students draw a picture of the Sun, Moon, a cloud, and a star, then write to answer questions.
- Materials provide multiple opportunities for students to engage in various written and graphic modes of communication to support students in developing and displaying an understanding of scientific concepts. In the Student Textbook, students will write down what happens as they find out what happens when two magnets are placed close to each other. In the Student Textbook, the class will create a simple graph displaying the last week's weather. In the Student Textbook in the How do You Group Objects unit, students use graphic organizers to classify objects. In the Properties unit, students draw pictures to compare items.
- Materials provide multiple opportunities for students to engage in various written and graphic modes. Materials support students to act as scientists and engineers who can learn from engaging in phenomena and engineering design processes, make sense of concepts, and productively struggle.

Materials support students to act as scientists and engineers who can learn from engaging in phenomena and engineering design processes, make sense of concepts, and productively struggle.

- Materials support students to act as scientists and engineers who can learn from engaging in phenomena and engineering design processes, make sense of concepts, and productively struggle. In the Steam Activity Guide, Teacher Edition, under the Vignette Day 4, students plan an investigation around, "Do we need lights to see?" In the Underground Gardening project, students first experience sprouting plants. They then conduct an experiment to determine how water flows through various types of soil. Students then apply this knowledge as they select soil for their flower pot to place their sprouts in. Students then observe and compare the plant's

growth to the parent plant. Last, they put the class plants together and looked for organisms that had taken up residence in the plants. The materials in the STEAM Activity Guide support students to act as scientists and engineers in the Scientific and Engineering Practice Project section. They decide on a problem and follow the steps to design, explain and productively struggle through the testing of the design.

- Materials support students to act as scientists and engineers who can learn from engaging in phenomena and engineering design processes, make sense of concepts, and productively struggle. In the Teacher Textbook, students make a thumb pot, and are provided a list of success criteria. The teacher will have the students think about the strengths and limitations of their model. Students are asked to define any problem they may have, such as water leaks.

TPS Steam into Science Grade K

Indicator 5.1

Materials promote students' use of evidence to develop, communicate, and evaluate explanations and solutions.

1	Materials prompt students to use evidence to support their hypotheses and claims.	PM
2	Materials include embedded opportunities to develop and utilize scientific vocabulary in context.	PM
3	Materials integrate argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and grade level.	PM
4	Materials provide opportunities for students to construct and present developmentally appropriate written and verbal arguments that justify explanations to phenomena and/or solutions to problems using evidence acquired from learning experiences.	PM

Partial Meets| Score 2/4

The materials partially meet the criteria for this indicator. Materials somewhat promote students' use of evidence to develop, communicate, and evaluate explanations and solutions.

Materials prompt students to use some evidence to support their hypotheses and claims. Materials include some embedded opportunities to develop and utilize scientific vocabulary in context. Materials integrate some argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and grade level. Materials provide some opportunities for students to construct and present developmentally appropriate written and verbal arguments that justify explanations to phenomena and/or solutions to problems using evidence acquired from learning experiences.

Evidence includes but is not limited to:

Materials prompt students to use evidence to support their hypotheses and claims.

- Materials include some specific prompts for students to use evidence when supporting their hypotheses and claims. In the Earth and Space lesson, students catch air in a bag. Step 6, in the teacher's directions, states, "Ask students how they can provide evidence to show that air is all around us." However, the lesson does not have students create a hypothesis or claim.
- Materials provide some opportunities for students to develop how to use evidence. In the How Do You Group Objects Mini Experiment 1, students feel the weights of objects, sort them into heavy and light, and record this on a table. The student-facing instructions state, "In the table below, write down the weight of each object. This is evidence." The students also do not form a hypothesis in this mini-experiment.
- In the Learn by Doing Steam Activity Reader, Scientific Method section, there is guidance on teaching what a hypothesis is, and the teacher gives examples, including "I predict that ants will move towards sugar because I saw ants on the ice cream I left outside." The teacher prompts students to use evidence throughout the materials, but the materials lack guidance on how to use the evidence.

- Materials provide some opportunities for students to use hypotheses but lack consistent prompting for students to use evidence in supporting hypotheses. For example, students use hypotheses in the Learn by Doing Steam Activity Reader, Chapter 2, Activity 3. Students predict what might happen when they point a flashlight at different objects. Students plan and test their predictions, and they draw their results. Students explain why some materials worked and some did not. At the end of the lesson, the students are reminded to listen for evidence, but materials do not provide direct prompts for evidence, examples of evidence, or instructions on how to find evidence.
- Materials include prompts within each experiment in the Learn By Doing STEAM Activity Reader Book to guide the students on how to use the evidence. For example, teacher guidance for an experiment with light states, "Ask the children to use their words to explain why some materials let light pass through and others did not." Additionally, materials direct the teacher to discuss results with students as follows: "Ask the children to communicate their results with the class. Discuss the results with the children. Ask them what objects moved down the ramp fastest and slowest and what caused them to move in this way?"

Materials include embedded opportunities to develop and utilize scientific vocabulary in context.

- Materials include embedded opportunities to develop, utilize, and apply scientific vocabulary in context. In the STEAM Learn by Doing Activity Book, students read chapters about science content with embedded scientific vocabulary that is bolded. Students then apply the vocabulary to some of the activities following each chapter. In Chapter 3, students read about force and motion. The embedded vocabulary words include energy, work, move, change shape, and force. In the following activity, 1, students utilize the vocabulary words to observe how different objects roll down a ramp and discuss the results.
- In each chapter of the STEAM Learn by Doing Activity Book, students read chapters about science content with embedded scientific vocabulary that is bolded. Students then apply the vocabulary to some of the activities following each chapter. At the end of each chapter is an activity section; the last activity is a vocabulary review. The words are listed in a table, and bulleted suggestions for practice are listed. Some suggestions include "Spell out the words" and "Ask the children what the words mean and demonstrate with an action or an example." In Chapter 4, the vocabulary activity is Activity 6. The words listed are "coin, metal, push, dig, nickel, quarter, dime, opposite, sad, force, penny, screw, happy, pull, treasure, and magnet."
- Students develop and utilize scientific vocabulary in context in the Teacher Textbook, "Tools" Chapter. Teachers show glossary pictures of different tools, and students name the ones they know. The teacher displays the pictures on a Word Wall and adds the tool's name with a sentence describing how to use the tool. The materials state that the teacher should ask students to name and describe tools from the wall daily.
- In the chapter "Force, Motion, and Energy" in the Teacher Textbook, materials include a section titled Support. Materials direct teachers to "reinforce the vocabulary. Remind students that if a magnet does attract material, it is magnetic. Have students practice using new vocabulary. Students should use the correct vocabulary when answering questions or during discussions."
- Materials include word work activities with science vocabulary. In the Learn By Doing STEAM Activity Reader Book, vocabulary words are printed in bold. Students are then asked to complete an activity to pronounce the words in syllables, sort by initial sound, sound out the words, and match the words to a picture.

- Materials provide defined vocabulary lists. In the Teacher Textbook, there is a section labeled "Key Words." It is evident that these are the vocabulary words for the unit. They are listed with the definition beside each word.
- Materials do not include opportunities to develop and utilize scientific vocabulary after having a concrete or first-hand experience. In the Teacher Textbook, in the Properties lesson plan materials direct teachers to pick up a marble and a stone and discuss their properties. Students do not touch or closely observe the marble and stone in order to experience how to describe *physical properties* using touch and sight.

Materials integrate argumentation and discourse throughout to support students' development of content knowledge and skills as appropriate for the concept and grade level.

- Materials provide opportunities for students to engage in discussion and develop the integration of argumentation and discourse. In the Teacher Textbook, in the Earth and Space chapter, Project Based Lesson, the Summary portion guides the teacher to put students into pairs. "Place students into pairs, and ask them to engage respectfully in scientific argumentation. Provide students with the data and information they need to support their argument."
- Scientific argumentation is explained in the PBL section of the Teacher textbook STEAM Activity Guide has references to scientific argumentation in the Vignette. It tells the students to "Construct an argument" but does not support their development and is not integrated throughout.
- Materials integrate some argumentation and discourse references. Learn By Doing STEAM Activity Reader contains some opportunities for students to develop how to practice argumentation and discourse. In the Force, Motion, and Energy Word Wall Activity, students must use what they learned in the day's lesson to communicate the information to other scientists and the public. Students may write a newspaper article, create an educational video or deliver a presentation. Guidance is provided to consider the audience when creating the presentation.
- The Teacher Textbook integrates argumentation and discourse within some lessons. In the engineering Project Based Lesson, students are prepared for classmates to disagree with their solution. The text states, "Each group will share their designs and test results, and the best solution for the problem will be agreed upon as a class. To support the decision, the class creates a list of strengths and weaknesses of each group's design and highlights why the winning design is best."
- Materials provide opportunities for students to discuss results but do not allow students to engage in argumentation and discourse practices. The students share the activity results in the Learn by Doing Steam Activity Reader, Chapter 2, Activity 3. During the conclusion portion, the teacher asks the students which object would make good window material. Students are asked to "actively listen." In some activities, materials provide guidance for discussion that includes argumentation and discourse among the students.

Materials provide opportunities for students to construct and present developmentally appropriate written and verbal arguments that justify explanations to phenomena and/or solutions to problems using evidence acquired from learning experiences.

- Materials provide some opportunities for students to justify explaining phenomena and solutions to problems using verbal arguments to problems using evidence acquired from

learning experiences. In the STEAM Activity Learn by Doing Book, Chapter 2, Activity 3, students experiment to observe the behavior of a light source. The Discussion of Results section states, "Ask the students to use their words to explain why some materials let light pass through and others do not."

- Materials provide some criteria for developmentally appropriate arguments to explain a phenomenon or defend a solution to problems using evidence acquired from learning experiences. In the STEAM Activity Learn by Doing Book, Chapter 2, Activity 3, students experiment to observe the behavior of a light source. The section called "Discussion of Results" states, "Remind them to listen actively to others' explanations to identify important evidence and engage respectfully in scientific discussion. Use this opportunity to review the difference between a [sic] hypothesis and a theory."
- Materials provide some opportunities for students to construct and present developmentally appropriate written and/or verbal arguments to justify explanations of phenomena and solutions to problems using evidence acquired from learning experiences. In the Teacher Edition, Project Based Lesson, students construct and present explanations of phenomena but are not taught to use the evidence from their learning experiences. For example, as a class, the students discuss failure points from the data gathered. The materials suggest that the class can write a newspaper article, create an educational video, or deliver a presentation with their results. The materials do not build appropriately on this type of communication.
- Materials provide insufficient guidance and explanation of how to support students in creating arguments supported by evidence. In the Steam Activity Guide, Vignette, students can demonstrate understanding if they can construct an argument supported by evidence for how plants and animals have different parts. On day 1, students draw the parts of a plant, and on day 2, they draw the parts of a tree. On day 3, students tell about their favorite plant. Students do not collect evidence to support their argument as the guidance suggests.

TPS Steam into Science Grade K

Indicator 5.2

Materials provide teacher guidance to support student reasoning and communication skills.

1	Materials provide teacher guidance on anticipating student responses and the use of questioning to deepen student thinking.	PM
2	Materials include teacher guidance on how to scaffold and support students' development and use of scientific vocabulary in context.	PM
3	Materials provide teacher guidance on preparing for student discourse and supporting students in using evidence to construct written and verbal claims.	PM
4	Materials support and guide teachers in facilitating the sharing of students' thinking and finding solutions.	PM

Partial Meets | Score 2/4

The materials partially meet the criteria for this indicator. Materials include some guidance to support student reasoning and communication skills.

Materials provide some teacher guidance on anticipating student responses and the use of questioning to deepen student thinking. Materials include some teacher guidance on how to scaffold and support students' development and use of scientific vocabulary in context. Materials provide some teacher guidance on preparing for student discourse and supporting students in using evidence to construct written and verbal claims. Materials partially support and guide teachers in facilitating the sharing of students' thinking and finding solutions.

Evidence includes but is not limited to:

Materials provide teacher guidance on anticipating student responses and the use of questioning to deepen student thinking.

- Materials provide some teacher responses to possible students' responses. The materials divide teacher guidance into correct student responses, incorrect student responses, and partially correct student responses. The Teacher Program Guide recommends that students responding correctly be provided with "Level 2 assessment questions" from the "Online Library - Assessment tools" for the TEKS being taught and affirm comprehension. The guide recommends that students responding incorrectly be provided with "Level 1 assessment questions." The materials state, "A student responds incorrectly - use the Online Library - Assessment tools; choose Level 1 assessment questions for the TEKS being taught…. Determine if there is a misconception and resolve." Materials do not include specific guidance on the use of questioning to deepen student thinking.
- Materials provide teacher guidance on questioning to deepen student thinking. For example, in the Learn by Doing Steam Activity Reader Book, the teacher is prompted to take students on a school tour and identify living and non-living things. The teacher is guided to ask if students can describe why it is living or nonliving. Then ask, "Does it breathe? Does it move?". In chapter one idea box 4, materials direct teachers to "Ask the children what questions they have about objects in the natural world?" In Idea Box 6, "Ask them what buildings are made of?"

TPS Steam into Science Grade K

Materials include teacher guidance on how to scaffold and support students' development and use of scientific vocabulary in context.

- Materials include some teacher guidance on how to scaffold understanding of scientific vocabulary. The Learn By Doing STEAM Activity Reader Teacher Edition provides embedded support for introducing students' development of scientific vocabulary in context. In Chapter 7, vocabulary words such as *weather*, *wind*, spring, and *season* are first presented in the chapter story text, and a few of the words are reinforced in idea boxes that guide teachers in class discussion with the students and activities. Materials provide a review in the vocabulary section in the last Activity of The chapter. Materials do not provide teacher guidance for specific terms beyond the idea boxes.
- The Learn by Doing Steam Activity Reader includes guidance only for routine and general strategies, such as reviewing vocabulary words by spelling them out, asking for a definition, acting out the word, and reading and sounding them out. Materials do not provide word-specific suggestions within the activities.
- Materials include some teacher resources on learning vocabulary words but no specific guidance is provided on supporting students' development of scientific vocabulary in context. Materials include a list of Key Words in the Teacher's Textbook. The Key Words list vocabulary words and definitions that will be used in the chapter. According to the chapter, Traditional Lesson Plans, the vocabulary pages are included in the Blackline Masters and are encouraged to be sent home for students to study. Materials do not provide any other teacher guidance.
- Materials include some teacher guidance on students' use of scientific vocabulary in context. For example, the Teacher's Textbook in The Force, Motion, and Energy Chapter, a Support Section, states, "Reinforce The vocabulary. Remind students that if a magnet does attract a material, it is magnetic; if a magnet does not, that material is not magnetic. Have students practice the vocabulary. Students should use the correct vocabulary when answering questions or during discussions."

Materials provide teacher guidance on preparing for student discourse and supporting students in using evidence to construct written and verbal claims.

- Materials provide some teacher guidance on preparing for student discourse. In the Learn by Doing Steam Activity Reader, Chapter 1, the materials guide the importance of communicating the solution in the design engineering process. "During the sharing phase, encourage the children to actively listen to other children and participate respectively during discussions." Students will complete an activity in the Steam Activity Guide, Force over Motion and Energy chapter. The students are to draw a model to support a statement. Next, students discuss their drawings in small groups, and they are to create a list of facts that they agree upon. In the Learn By Doing STEAM Activity Reader Book in the weather chapter in Activity 7, students discuss their results. The LBD Teacher guide states, "Remind them to listen actively to others' explanations to identify important evidence and engage respectfully in scientific discussion." Materials lack teacher support in preparing students to engage in discourse other than the general statement of reminding students to listen actively.
- Materials do not guide teachers in supporting students in using evidence to construct written claims. The ELA/ELD Connections section of the STEAM Activity Guide states to write claims supported by evidence and reasoning, but materials do not include teacher guidance. Materials state, "The Major scientific practice for this vignette is for students to construct explanations.

These explanations include observations from experiments and investigations. Students must also write claims supported by evidence and reasoning. Provide students with books on the topic to incorporate text evidence."

- In The front matter of The Learn By Doing STEAM Activity Reader Teacher Edition, materials provide general guidance on preparing for student discourse and supporting students in using evidence to construct claims. Materials state that students should write about their experiments and include "The analysis of their results. Plan to discuss The results as a class and focus on key areas such as What their results indicate or mean and differences between different student experiments. What conclusions can be drawn."
- The teacher's textbook includes investigations. However, materials do not include teacher guidance to have students use evidence to support their claims. For example, in a Force, Motion, and Energy lesson, students collect data and evidence about objects and their light. After collecting evidence, students are not directed to apply it to a claim.

Materials support and guide teachers in facilitating the sharing of students' thinking and finding solutions.

- Materials provide some support and guidance in facilitating the sharing of students' thinking. In the Teacher Textbook, the PBL summary sections have think-pair-share opportunities for students to share their thinking and questions. In the STEAM Learn by Doing Reader, the materials support and guide the teachers in facilitating the sharing of thinking and solutions in the activities throughout the chapters by asking the students to share their results with the class and engage in scientific discussions. For example, in Chapter 7, Activity 7, students explore the air around them. The "Discussion of The Results" section has students share results and states, "Ask the children to share their results with the class, showing how their ribbons behaved in the wind and what was demonstrated. Remind them to listen actively to others". Students critique each other's work in the chapter on Earth and Space in the Learn by Doing Steam Activity Reader. The materials do not include guidance on facilitating the sharing of students' thinking.
- The materials do not provide teacher guidance to engage students' thinking in various modes of communication throughout the year. For example, the Assessment Guide includes sample responses to "Focus Questions" for the lesson "Solving Problems." Materials do not include guidance on what scientific understanding is needed to develop these answers to help teachers facilitate students showing their thinking in written form.
- Materials provide some support and guidance for teachers in facilitating the sharing of students' finding solutions. The Learn By Doing STEAM Activity Reader Teacher Edition provides teacher guidance on facilitating students finding solutions. In Chapter 5, Idea Box 3, The text states, "Discuss with your children how they might conserve by reducing use, reusing and recycling natural resources and materials from their classroom. Through demonstration and practice with The children, work with them to conserve natural resources and other materials." In the Assessment Guide, Investigation, and Reasoning, students discuss in small groups. Students consider a problem outlined on the Investigation page, and they discuss their answers and come to an agreement. Students present their analysis to the class. During the discussion portion of the lesson, students critique others' work. The materials guide the teachers to offer two starts (positive feedback) and a wish (improvement).

TPS Steam into Science Grade K

Indicator 6.1

Materials include a variety of TEKS-aligned and developmentally appropriate assessment tools.

1	Materials include a range of diagnostic, formative, and summative assessments to assess student learning in a variety of formats.	M
2	Materials assess all student expectations over the breadth of the course and indicate which student expectations are being assessed in each assessment.	M
3	Materials include assessments that integrate scientific concepts and science and engineering practices with recurring themes and concepts.	M
4	Materials include assessments that require students to apply knowledge and skills to novel contexts.	M

Meets | Score 2/2

The materials meet the criteria for this indicator. Materials provide a variety of TEKS-aligned and developmentally appropriate assessment tools.

Materials include a range of diagnostic, formative, and summative assessments that include formal and informal opportunities to assess student learning in a variety of formats. Materials assess all student expectations and indicate which student expectations are assessed. Materials include assessments that integrate scientific concepts and science and engineering practices with recurring themes and concepts. Materials include assessments that require students to apply knowledge and skills to novel contexts.

Evidence includes but is not limited to:

Materials include a range of diagnostic, formative, and summative assessments to assess student learning in a variety of formats.

- The materials provide a student and teacher edition of the Assessment Guide. This booklet contains both traditional assessments and project assessments for TEKS covering the following concepts: scientific and engineering practices; force, motion, and energy; Earth and space; organisms and environments. For example, within the study of organisms and environments, the assessment guide contains nine designated assessment activities (formative and summative) that include both traditional test questions and project-style application tasks.
- Materials provide diagnostic assessments. The Teacher Program Guide contains a section called Support Notes for Teachers. Within the Support Notes for Teachers segment in the TPG, there are frequently asked questions with answers. Question 4 in this document asks, "Where are the TPS diagnostic, formative, and summative assessment tools?" The responses state that for the Diagnostic assessments, "the interactive software tool provides automated grading for multiple choice questions; Benchmark tests (Level 1, 2 and 3 Assessments) in Online Library - Blackline Master." Materials discuss the four Benchmark tests included in the program. Benchmark 1 test assesses natural knowledge at the term's commencement before any program content. Benchmark 2 test is TEKS-based and set by teachers for TEKS taught on the examination date. Benchmark 3 test is the end-of-term test covering TEKS taught by a date given. Benchmark 4 is the end-of-year test to review skills by students by TEKS for all TEKS.

- Materials provide formative assessments. The formative assessments include "Level 1 questions in the interactive software tool or assessment generator; STEM project Explore 1 and 2; Let's Talk About It, Let's Draw It, Stop, Look, Think! - Amelia Rose arts projects." The Assessment Guide Kindergarten Teacher Edition, Chapter Earth and Space, includes assessments such as multiple choice, open-ended questions, and a performance task with a rubric. For example, in the chapter Scientific Investigation and Reasoning 3, Open Questions, students are asked to explain why cars have headlamps and rear lights
- Materials provide summative assessments. The Summative assessments are "Level 2 and 3 questions in the interactive software tool and assessment generator; Test yourself, Focus questions, Multiple choice, Open-ended, Science makers, Performance tasks with rubric; StemProject Explore 3. Each chapter in the Student Textbook includes a What Have You Learned section and a Test Yourself section. Chapter 1, What Have You Learned, shows six objects. It states, "Write a sentence about each of these objects. Which of these objects are durable?" The Test Yourself section includes four two-choice questions and two open-ended questions. Students can also answer focus questions in the Student Textbook to show their learning.
- Materials include a range of embedded assessment activities in teacher resources. In the Teacher Textbook, the materials state, "These reader books [Learn by Doing STEAM Activity Reader Book] include expository text, hands-on activities, and assessment tasks." The Teacher Textbook also provides steps for formative assessments in the additional Hints sections of the Parts of a Plant unit to evaluate what students remember from memory and what they know and don't know about the Parts of a Plant. For example, the Procedures say, "Draw and color a flowering plant from your memory." Materials state that they include a variety of formal and informal opportunities to assess student learning in various formats. Specifically, the materials state that the formal assessments include "Benchmark tests; Level 1, 2 and 3 - in the interactive software tool, assessment generator, and Online Library - Blackline Master." The informal assessments include "STEM Explore 1-3; Arts assessments such as Let's Talk About It, Let's Draw It, Stop, Look, Think!"In the Program Overview, the publisher states that the program design offers multiple opportunities to master the content required in the TEKS.

Materials assess all student expectations over the breadth of the course and indicate which student expectations are being assessed in each assessment.

- The Assessment Guide clearly labels each activity with the portion of the TEKS assessed. For example, one performance task for force, motion, and energy lists the TEKS K.1.A - Scientific and engineering practices (ask questions and define problems) and K.7.A Force, motion, and energy (magnets; push or pull). The performance task has a skills assessment in which students investigate to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object. Following the project, open-ended and multiple-choice questions assess student learning and mastery of the identified TEKS. The TEKS addressed and taught in that section or chapter are at the top in the Assessment Guide. It allows for quick reference and guidance for the teachers and students. For example, the Science Assessment Questions Open-ended Questions refer to the scientific and engineering practices TEKS listed at the top of the page.
- Materials indicate which TEKS are assessed across the breadth of the course. In the Teacher Program Guide, the materials within the Progress Monitoring information describe the Focus Questions, Performance Tasks with Rubrics, TEKS by Chapter assessment questions, and Assessment Generator. Under Performance Tasks with Rubrics, the materials state, "For each TEKS, a performance task with a rubric is provided. Grade students and enter results onto the

report card." The By TEKS, Chapter assessment questions at the end of each chapter, and the materials note, "The major assessment tools are those in the Online Library - Assessment tools." Under Assessment Generator, the materials say, "Teachers can create, save, and print assessments to include chosen TEKS and skill levels. The tests can be personalized by the student or by class. Manual grading is required."

- Materials indicate which expectations are being assessed in each assessment. The Assessment Generator is categorized by grade level, question type, learner level, and TEKS, enabling the teacher to evaluate all student expectations. The online Assessment Generator can create assessments for any grade-level standard. Materials include TEKS-aligned assessments that align the curriculum standards and student expectations to measure student understanding and mastery of the concepts and skills taught in the materials. The Assessment Guide Kindergarten Teacher Edition, Science Investigation and Reasoning 3, the TEKS are listed at the top of the page and align to the Open Questions. The question, "Name two different sources of light," aligns with the TEK K.1 and K.8 listed at the top of the page.
- Materials provide resources to assess student expectations across the breadth of the course. In the Student and Teacher Textbook, the materials indicate which student expectations are assessed by having the standard above each page. Teachers can find Standard 1(D) in the Tools chapter at the top of each assessment page. The Learn By Doing Assessment Rubric shows where to find each standard assessment to demonstrate that all student expectations are covered.

Materials include assessments that integrate scientific concepts and science and engineering practices with recurring themes and concepts.

- The Teacher's Textbook's Project-Based Learning Section contains assessments integrating scientific concepts with science and engineering practices. For example, the Weather PBL for Kindergarten has a performance assessment where students observe and describe weather patterns over a month. They track data using a chart, read a thermometer, make predictions, and a Math extension and at-home discussion.
- The Assessment Guide contains activities integrating scientific concepts and science and engineering practices with recurring themes and concepts. For example, in the Force, Motion, and Energy Skills Assessment, students are to plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object and answer open-ended questions. The assessments in these materials integrate scientific and engineering concepts and practices within the themes of the TEKS. For example, the assessments integrate, include, and assess scientific and engineering practices within the first TEKS band. The front matter of the teacher edition of the Assessment Guide organizes this content for all grade levels under the headings: Questions and Answers (K.1.A), Solving Problems (K.1.B), Working Safely and Responsibility (K.1.C), and Using Tools (K.1.D). Under each heading, some segments include the program objective and scaffolding Information for each grade level. For example, under the heading Solving Problems in the Kindergarten materials, the objective reads, "Students will be able to identify and explain a problem and make predictions based on observable patterns in nature. they will learn that scientists investigate different things in the natural world and use tools to help in their investigations."
- Materials include assessments that integrate scientific concepts and science and engineering practices. In the Steam Activity Reader Book, Chapter Assessments, "Ask the student to demonstrate, using objects they have selected from the classroom, how light from a flashlight travels through some objects and is blocked by others.". The question covers TEKS 8(B). In the

Learn by Doing Steam Activity Reader, Chapter 2, Activity 4 Sunshade, students design a sunshade for a dog using the design engineering process. The rubric for assessment is found in the Learn by Doing Assessment Rubric Grade K. In Chapter 7, students act like scientists to observe, measure and record the weather. The assessment item for the same standard shows a clipart flag and cartoon children flying a kite. It states, “Question: Ask the students to describe what is happening with the air in the following pictures.”

- The Materials include a Learn By Doing Assessment Rubric. The resource lists the standards, where taught, a specific assessment question, a general assessment question, and a rubric to score students' answers. For 5. B, the specific question is, "After reading chapters 3 & 4, ask the students to predict a cause and effect with a push or pull force." The general question is, "Students are able to investigate predicted cause and effect relationships."

Materials include assessments that require students to apply knowledge and skills to novel contexts.

- The materials include assessments that require students to apply knowledge and skills to novel contexts. Specifically, the assessments within the program's Assessment Guides are activities separate from the lessons in the other program materials. This structure allows for assessment within the topic of study but in a new context. For example, in Kindergarten, during the study of push and pull with magnets. Then, the Assessment Guide provides a performance task skills assessment that requires students to apply knowledge and skills about magnets and push and pull in a performance task skills assessment, which includes a rubric for scoring and summative questions.
- In the Assessment Guide Science Assessment Questions section under the Performance Task Prompt, the "students will think about the ways in which humans can make life better for other animals and plants by providing places, or environments, which have all the things they need to grow, survive and reproduce." Students will produce a plan for a wildlife garden at school. This task applies knowledge and skills to novel contexts after students learn about how plants and animals depend on the environment to meet their basic needs for survival.
- Material includes assessments that require students to apply knowledge and skills to novel contexts. In the Assessment Guide Kindergarten Teacher Edition, Chapter Earth and Space, Performance Task, students look for patterns in weather with the chart they recorded weather observations on. Students will describe the patterns in weather they notice. Materials ask, “Did you notice any patterns in the weather over the time that you made your observations? Describe the patterns you noticed.”. Next, students spend one-week charting weather, temperature, and rainfall in the morning and afternoon independently. Students should be able to construct an accurate weather chart and summarize the week’s weather correctly.

TPS Steam into Science Grade K

Indicator 6.2

Materials include guidance that explains how to analyze and respond to data from assessment tools.

1	Materials include information and/or resources that provide guidance for evaluating student responses.	PM
2	Materials support teachers' analysis of assessment data with guidance and direction to respond to individual students' needs, in all areas of science, based on measures of student progress appropriate for the developmental level.	PM
3	Assessment tools yield relevant information for teachers to use when planning instruction, intervention, and extension.	PM
4	Materials provide a variety of resources and teacher guidance on how to leverage different activities to respond to student data.	PM

Partial Meets | Score 1/2

The materials partially meet the criteria for this indicator. Materials include some guidance that explains how to analyze and respond to data from assessment tools.

Materials include some information and/or resources that provide guidance for evaluating student responses. Materials somewhat support teachers' analysis of assessment data with guidance and direction to respond to individual students' needs, in all areas of science, based on measures of student progress appropriate for the developmental level. Assessment tools yield some relevant information for teachers to use when planning instruction, intervention, and extension. Materials provide some resources and teacher guidance on leveraging different activities to respond to student data.

Evidence includes but is not limited to:

Materials include information and/or resources that provide guidance for evaluating student responses.

- The teachers' editions inconsistently provide assistance for evaluating responses. The Learn by Doing STEAM Reader Book only contains examples for student responses to general questions that are to be investigated during a culminating activity for the content TEKS, located under the Assessment section of the guide's table of contents, but there are many activities in this guide that include no guidance for evaluating student responses. Each chapter in this Reader has multiple activities, sometimes as many as 8 per chapter, and there is no guidance for evaluating students' responses or performance in those activities. This is in sharp contrast to the Teacher Textbook which offers guidance in red text for every student activity/question.
- Materials provide some teacher guidance for evaluating student responses. The Assessment Guide includes a Science Assessment Questions section with a scoring rubric that helps teachers evaluate students' responses to the performance task prompt. For instance, in one of the prompts, "Explain what your design was supposed to do," the rubric assigns a score of 0-4 points for this prompt. Another example students create a chart to record the weather. The assessment includes a Scoring Rubric that describes the quality of answers that would score 0-4. A four-point answer requires, "Students have constructed an accurate weather chart throughout the week and can summarize the week's weather correctly. They answer all the questions with appropriate weather language and add extra information such as their location

in the US or even the world and the year's season." For a score of 4, the rubric does not guide the teacher on how to evaluate the students' responses. It does not guide the teachers as to what an "accurate weather chart" would look like.

- Materials include some information that guides evaluating student responses. In the Learn by Doing Assessment Rubric - Kindergarten, the guide gives an assessment question followed by responses that determine mastery. For example, "Ask the students to describe the safe practices in your class verbally." According to the rubric for mastery, students must be able to verbally describe all of the safe practices without prompting. This rubric doesn't guide the teacher as to what the "safe practices" are. The rubrics are often vague and not useful in guiding teachers to evaluate student responses.
- In the Learn by Doing Steam Activity Reader, Chapter 3, Activity 1, students will conduct a simple science investigation. Students will understand how objects with different shapes move. The teacher instructs the students to draw their hypotheses in a notebook. According to the Learn by Doing Rubric, teachers will assess the students on a four-point rubric. To receive a score of four, "students can verbally describe observations fully and follow instructions to collect evidence." The rubric lacks teacher guidance as to what observations they should have shared and what instructions they should have followed. This lack of specificity in the rubric leaves the teacher to their own interpretations in evaluating student work
- In the Teacher Textbook, students are asked in a formative assessment, "What happens when you bring two magnets close to each other?". A suggested answer for the teacher states that they either move away or towards each other.

Materials support teachers' analysis of assessment data with guidance and direction to respond to individual students' needs, in all areas of science, based on measures of student progress appropriate for the developmental level.

- Materials include some support for the teacher's analysis of assessment data within the teacher materials by providing interactive assessment tools that provide student summary reports and an assessment matrix document tool that teachers can use to record student data and then analyze. The materials offer some guidance and direction to respond to individual student's needs with a visual flow chart of assessment resources and paths of response to needs based on data within the Teacher Planning Guide.
- Materials lack specific guidance documents and resources to support teachers' analysis of assessment data. In the Teacher Program Guide, Program Introduction, overview information details that teachers assess student learning using Level 1 and Level 2 questions from the online library assessment generator. The general guidance states that if students answer either or both questions correctly, mastery is "likely." If students need more opportunities, the teacher guidance offers STEM and Art content, which will help deepen students' learning. The information gathered from the assessment tools lacks specifically detailed guidance to support teacher analysis of data when planning core and differentiated instruction. The materials do not offer specifically embedded guidance or feedback in the Assessment Tool Generator, Assessment Guide, or Assessment Rubric.
- Materials provide some guidance documents and resources to support the teacher's interpretation of the data. While materials include an assessment generator that can be used to create a custom assessment, materials do not suggest ways to make instructional decisions based on the assessments. Teacher Textbook refers to using the Assessment Generator in creating assessments and then collecting student data utilizing an assessment matrix but then does not guide how to interpret that data to plan instruction.

- Materials provide some guidance and tools to support teachers in responding to data to inform instruction. In the front matter of the Teacher Textbook materials, an overview flow chart visually delineates the assessment-instruction process to respond to student needs based on assessment data. The flow chart shows the general steps that teachers can take to address student needs in an overview format. However, these steps are not supported by guidance throughout the materials. Although the materials contain “Intervention Focus Tutorial” materials to assist students who are not meeting expectations, these supports are not directly aligned with assessment data. For example, for Matter and Its Properties, there is a lower-level version of the material in the Student Textbook. However, this material is not directly correlated to assessment data. This “Intervention Focus Tool” tool could not be accessed and evaluated, and no materials provide direct guidance on how this tool can be used to respond to assessment data collected. Materials provide an alternative scope and sequence, which only suggests slowing the material down and breaking it into smaller lessons. According to the document, How to Use the Program, “If you are a teacher in a specialist school, with students performing at far below grade, you might choose to use this tool and adhere to the Learn By Making Activity Reader Scope and Sequence RTI approach.”.
  Materials include some assessment tools that yield data teachers can analyze and interpret. Within the Teacher Textbook, the "Textbook Work" sections guide the teacher through the assessment steps within each investigation. However, these sections do not support analyzing or evaluating the data collected from students' responses. For example, the second part says, "Students should complete the What Have You Learned? exercise. Have students hand in this work for evaluation."The Assessment Guide offers a range of tools for evaluation and questioning, including multiple-choice and open-ended questions and performance tasks. However, it lacks support materials or resources to help teachers easily analyze and interpret the data they collect.

Assessment tools yield relevant information for teachers to use when planning instruction, intervention, and extension.

- Materials provide various assessment tools and resources, including embedded questioning in student materials, an assessment guide, and an online assessment generator that could be used to support teachers when planning instruction, intervention, and extensions.
- The information gathered from the assessment tools helps teachers when planning core science instruction. Although the materials provide formative and summative assessments in the Student Textbook, like in the Learn by Doing STEAM Reader, the Assessment section at the back contains questions related to each core concept. However, they do not suggest ways to make instructional decisions based on the assessments. The materials also include an assessment generator that can be used to create a custom assessment of the material and an Assessment Guide, which offers a range of tools for evaluation and questioning, including multiple-choice and open-ended questions and performance tasks. However, it lacks support materials or resources to help teachers analyze and interpret the data to support planning instruction, intervention, and extension activities from the data they collect.
- The information gathered from the assessment tools helps teachers plan differentiated instruction. The information gathered from the assessment tools lacks guidance when planning core and differentiated instruction. In the Teacher Program Guide K-8, the information provided states, "Level 1 learners will require more time and content from STEM and art projects in conjunction with story books.". Level 2 students must follow the original scope and sequence and work on additional projects at home. Level 3 students continue the scope and sequence and

can complete the advanced learner content and advanced STEM projects. Benchmark tests determine levels. This limited guidance does not support effective instructional planning that is targeted to students' needs. Another example in the Teacher Textbook front matter materials provides an Assessment Database section. This section briefly describes the assessment resources but does not explicitly state how to utilize the resources to guide instructional planning.

Materials provide a variety of resources and teacher guidance on how to leverage different activities to respond to student data.

- Materials provide a variety of resources on how to leverage different activities to respond to student data. Materials include a Teacher Program Guide, Teacher Textbook, and Teacher versions of student books that describe activities and include some overviews and teacher guidance on how all the student materials and activities can be leveraged to respond to student data. Materials also include various student materials that can be used to collect data for teachers to respond to students' instructional needs.
- Materials provide a variety of student resources for teachers to use in responding to performance data. However, they lack teacher guidance on how to leverage activities and respond to the student data. Examples of resources include the Learn By Doing STEAM Activity Reader, the Student Textbook, the Student Journal, the STEAM Activity Guide, the Student Assessment Guide, and the Intervention Focus Tutorial. However, these resources do not guide teachers in effectively using performance data to respond to students' needs. An Assessment Generator is a tool for gathering student data. Teachers use the generator to create assessments based on grade level, TEKS, and learning level. They can choose between multiple-choice or open-ended questions and preview them before finalizing. However, there is no guidance on how teachers respond to the data from these assessments to support students' learning.
- Materials provide various teacher information but provide only some guidance for teachers to leverage different activities to respond to student data. For example, The materials provide various student resources to respond to performance data for Level 2 or Level 3 students. Students are provided direct instruction on science concepts through the Learn by Doing Steam Activity Reader. Students work on activities after the read-aloud. For example, in Chapter 1, Activity 2, students draw lines between soft objects. The next activity has the students create a mindmap of what they may find on the beach. In the Teacher Program Guide K-8, "Level 1 learners will require more time and content from STEM and art projects in conjunction with story books.". Level 2 students must follow the original scope and sequence and work on additional projects at home. Level 3 students continue the scope and sequence and can complete the advanced learner content and advanced STEM projects. The materials lack various student resources for teachers to respond to performance data.

TPS Steam into Science Grade K

Indicator 6.3

Assessments are clear and easy to understand.

1	Assessments contain items that are scientifically accurate, avoid bias, and are free from errors.	PM
2	Assessment tools use clear pictures and graphics that are developmentally appropriate.	PM
3	Materials provide guidance to ensure consistent and accurate administration of assessment tools.	PM
4	Materials include guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of knowledge and skills aligned to learning goals.	PM

Partial Meets | Score 1/2

Materials partially meet the criteria for this indicator. Assessments are somewhat clear and easy to understand.

Assessments contain items that are scientifically accurate, avoid bias, and are free from errors. Assessment tools do not use clear pictures and graphics that are developmentally appropriate. Materials provide some guidance to ensure consistent and accurate administration of assessment tools. Materials include some guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of knowledge and skills aligned with learning goals.

Evidence includes but is not limited to:

Assessments contain items that are scientifically accurate, avoid bias, and are free from errors.

- Assessments contain items for the grade level or course that avoid bias. Formative and summative assessments include items that present content and examples fairly and impartially with no impact on student performance based on such factors as a student's home language, place of origin, gender, or race and ethnicity. For example, summative assessment items in the Assessment Generator for Kindergarten include a man sleeping under a tree, while another item includes a woman walking in the wind.
- Assessments contain some items for the grade level that are scientifically accurate. The Assessment Generator, Database 193, Question 64 states, "What type of energy keeps you warm in your house?". The answer choices are heat, electrical, and light. The correct answer, according to the materials, is heat; however, the heat in most homes comes from electricity.
- Assessments contain some items for the grade level or course that exhibit errors. For example, the Scientific and Engineering Practices questions contain an error. Question number 25 says, "Look at this image. What 2 main parts would you categorize this image into?" There is an empty rectangle below with no image. The Matter and Property questions contain an error. Question number 56 says, "Name 3 parts of a house."

Assessment tools use clear pictures and graphics that are developmentally appropriate.

- Assessment tools often use unclear graphics. The items in the Assessment Database use a simplistic clipart to support questions. For example, when asking if the person is in day or night,

there is a blackline circle representing the Earth with a clipart person sitting on the side and a yellow circle representing the sun. They are not labeled. Another Assessment Database item shows an illustration of a cow on a green surface by a blue surface. The question asks, "Look at the image. What is this animal about to do?" The answer choices are "Eat grass," "Drink water," and "Sniff water." The cow illustration does not distinctly show the animal doing any of the three answer choices.

- In the Assessment Guide Student Edition, the materials contain few pictures and graphics. The majority of the material is text-based and not developmentally appropriate. Some items use simplistic clipart to support questions. For example, when asking if the person is in day or night, there is a small, simple clipart of five sunflowers on a fence with a yellow circle in the sky. The question asks what is in the image that the plants need to survive.
- The Assessment Database and Assessment Generator provide resources for teachers to create assessments. However, assessments need to be printed in color for students to interpret the graphics successfully. For example, in one assessment item, students determine if the child in an illustration is sitting during the day or night. The illustration includes an unlabeled yellow circle. If this assessment were not printed in color, the student's interpretation would be unclear.
- In the assessment generator, Database 95, Question Number 32, the question says, “Look at this image. What does the model represent?”. The model contains the Earth, Sun, and Moon. The sun is yellow, the moon is light gray, and the earth is blue. The assessment item must be printed in color for students to determine the correct answer.
- Computer-generated graphics can only be found in some of the Assessment Generator choices when creating assessments and in some informal assessments within the learning materials. Materials do not include photographs in these assessments.

Materials provide guidance to ensure consistent and accurate administration of assessment tools.

- Materials provide some guidance to ensure consistent and accurate administration of assessment tools. The “How to Use the Assessment Generator Tool” video walks teachers through creating an assessment with this online tool. It also provides some ways that teachers could use a created assessment with students that include printing or displaying for the group or class to complete. Materials do not include information about how to administer assessments. Materials include reminders or tips that give suggestions for the time allotted to complete some of the assessments. Not all assessments include time allotment suggestions.
- The Teacher Program Guide, Progress Monitoring, includes information about when to assess students. The product has four benchmark tests and guidance for when to give each benchmark. For example, "Benchmark 1 test - to assess natural knowledge at the commencement of term before any program content being taught". Materials guide the teacher on when to administer benchmarks 2-4 throughout the year. Focus questions are also in the student textbook. "Teachers are asked to assign a homework period and have students create a written response to each focus question."
- Within the Teacher Textbook, under Textbook Work in each lesson, there is recurring guidance for assessing the lesson. For example, one item states, "Students should complete the 'What Have You Learned?' exercise. Have students hand in this work for evaluation." The pages in the Teacher Textbook that correspond to the student pages provide an answer key for scoring.
- Materials offer assessment administration guidance inconsistently. Items in the database offer directions for multiple audiences without implementation support. For example, item #5 states, “What would you wear outside to keep yourself dry?” while #48 says explicitly, “Work on your own. Explain two ways that you can group various objects?” Another item, #51, tells students to

work with two or more friends. The materials do not provide consistent guidance for students or teachers. The Assessment Database does not include directions or similar guidance in any part of its online assessment platform. The entry screen provides options for teachers to select TEKS-aligned questions, choose the level of questions and show the answers.

- Materials include some information that supports the teacher's understanding of assessment tools and their scoring procedures. For example, the Program Guide states, "Teachers are provided with a teacher assessment matrix where they insert grades for relevant assessments, by TEKS by the student." The assessment matrix includes TEKS 6 - 13 but does not break each one down into all of each standard's parts, such as 6A, 6B, 6C, and 6D. Information includes a description of the TEKS and a table to input student names and scores. There is no place in the matrix to input names of specific assessments or information on scoring procedures for different assessment types, such as performance tasks and Benchmark tests. Materials do not include information on how teachers use the matrix once data is recorded.
- The Teacher Textbook provides a summary of the Assessment Database. The guidance states, "The Creative Science Curriculum encourages two types of assessment: visual lesson plan activities and quizzes/tests." Materials state teachers can conduct visual assessments by "watching students perform activities, such as found in STEM Project Editions or Arts Projects." Materials do not provide any checklists of criteria for scoring or recording visual assessments.

Materials include guidance to offer accommodations for assessment tools that allow students to demonstrate mastery of knowledge and skills aligned to learning goals.

- Materials offer some accommodations for assessments so students of all abilities can demonstrate mastery of learning goals. The Assessment Generator allows the teacher to select items above or below grade level that align with the standard. For example, an on-level question asks, " What would happen if you put a plant in a box with no air?" The below-grade level question is the same but adds the sentence, "Think about what a plant needs to live." Another example of an at-level question is, "Look at the image above. What problem could this weather cause?". The below-level question added, "Look at how the girl is standing." While materials offer a differentiated assessment option, materials do not include student assessment tools such as speech-to-text for answering written response items, visual clues such as color-coding text within test items, or text-to-speech features that enable students to hear text read aloud.
- Some assessment resources in the materials do not offer accommodations so that students of all abilities can demonstrate mastery of learning goals. The back of the Learn by Doing STEAM Activity Reader contains an assessment section for readers. According to The Teacher Program Guide, those purchasing the print-only format can use the questions in each Learn by Doing Activity Reader book for assessment. However, the assessment tool doesn't provide any guidance on how to offer accommodations for students to demonstrate mastery of knowledge and skills.
- Materials offer some accommodations for assessments, such as tips for presenting questions to aid understanding so that students of all abilities can demonstrate mastery of learning goals in their level of question choices. However, materials do not include teacher guidance on other presentation accommodations like visual cues, color coding, text-to-speech, or speech-to-text within assessments. Materials do not include guidance for accommodations such as assessment timing, scheduling, or change of setting for assessments to support all students.

TPS Steam into Science Grade K

Indicator 7.1

Materials include guidance, scaffolds, supports, and extensions that maximize student learning potential.

1	Materials provide recommended targeted instruction and activities to scaffold learning for students who have not yet achieved grade-level mastery.	PM
2	Materials provide enrichment activities for all levels of learners.	M
3	Materials provide scaffolds and guidance for just-in-time learning acceleration for all students.	PM

Partial Meets | Score 1/2

The materials partially meet the criteria for this indicator. Materials include some guidance, scaffolds, supports, and extensions that maximize student learning potential.

Materials provide some recommended instruction and activities to scaffold learning for students needing mastery. Materials offer enrichment activities for all levels of learners. Materials partially provide scaffolds and guidance for just-in-time learning acceleration for all students.

Evidence includes but is not limited to:

Materials provide recommended targeted instruction and activities to scaffold learning for students who have not yet achieved grade-level mastery.

- Materials include some teacher guidance for scaffolding instruction and differentiating activities for students who have yet to achieve mastery, but how to implement them is often unclear. It states, “Online libraries offer additional STEM and Arts projects; some are for advanced learners, some are specifically for special education students, but they are all-inclusive, and students with vastly different skill sets will enjoy completing the projects. Teachers can use more or less of the leveled materials to suit the individual student’s progression. For example, if students are working below or far below grade level due to reading, teachers can use the intervention focus tutorial and choose the grade and appropriate TEKS content that should have been mastered in an earlier grade but was not. “The Teacher Program Guide details information for teachers. On page 95, bullet 7 states 'How can teachers use TPS resources and teacher guidance to leverage different activities as a response to student results? In simple terms, level 1 learners will require more time and content from STEM and arts projects in conjunction with story books. Level 2 learners will follow the scope and sequence plan and can enjoy additional project work at home or, if time permits, within class. Level 3 learners will follow the scope and sequence and have time to use the advanced learner content shown within the book content and/or use the advanced STEM projects in the online library.' However, the teacher materials do not explicitly direct teachers to what materials they can use to intervene. These instructions lack specific teacher guidance on utilizing the materials to support each particular type of learner best.
- Materials include some teacher guidance for scaffolding instruction under the Support heading in the Teacher Textbook. In the investigation: Sensing Energy, the Support heading states, “Students may have difficulty accepting that something that is not made from matter exists. Use

comparison to help them overcome this problem. For example, talk about light and dark parts of the day, talk about taking something cold out of the refrigerator and making it hot, and talk about being noisy and then being quiet. Ask the student if they could hold the light, the heat, and the sound. Encourage students to continually practice their reading."

- Materials include some guidance for scaffolding instruction. For example, in the Assessment Guide Teacher Edition and the Teacher Textbook investigations, there are sections titled Support. This section states that some students may have yet to come across some equipment and need help figuring out what to do with them. The guidance is to pair them with a student who knows the tools. Detailed information appears in the teacher textbook. For example, Common Misconceptions information assists in targeting instruction; Page 5 TE; 'Students may associate the word 'tool' with items used for D.I.Y or gardening. Teachers should emphasize the different types of tools at each opportunity. Materials provide some teacher resources to support students who still need to achieve mastery. In the Teacher Program Guide, there is a reference to an Intervention Focus Tutorial. The tool covers various content in each grade. This guide states that teachers can use it with students who struggle with traditional textbook learning. However, the Intervention Focus Tutorial needs specific teacher guidance and clarification. For example, within the Intervention Focus Tutorial, under TEKS 8, students will pass around an apple and describe what they see, hear, touch, taste, and smell in writing. The information needs to include teacher guidance and targeted instruction for how it supports the students.

Materials provide enrichment activities for all levels of learners.

- Materials provide a variety of enrichment activities for level learners. Teacher guidance encourages the exploration and application of grade-level science knowledge and skills for all learners by applying new learning via STEAM activities in the STEAM Activity Guide. In the Underground Gardening project, students first experience sprouting plants. They then experimented to determine how water flows through various types of soil. Students then apply this knowledge to select soil for their flower pot to place their sprouts in. Students then observe and compare the plant's growth to the parent plant. Last, they put the class plants together and look for organisms that have taken up residence in the plants.
- Materials provide a variety of activities for all levels of learners. Teacher guidance encourages the exploration and application of grade-level science knowledge and skills for all learners by applying new learning via various activities in the Learn By Doing STEAM Activity Reader. In Chapter 3: Put Out That Fire, students first read about energy and force. The reading is followed by seven different activities aligned to the content, such as an experiment to understand how objects move on a ramp, a math graphing activity, a drawing activity, a discussion activity, and an engineering activity to design and build playground equipment.
- Materials provide enrichment activities for all levels of learners that account for learner variability. In the Learn by Doing Steam Activity Guide Grade K, the materials guide teachers to ask students to create a mind map of what they expect to find on the beach. In the Introduction of the Learn by Doing Steam Activity Reader, information states that the authors designed the Steam Reader books to stimulate collaborative discussion.
- Materials provide enrichment activities for all levels of learners. In the Teacher Textbook, in the Project Based Lessons in the back of the book, there are enrichment activities for all levels of learners. Other extensions, like Math extensions, are embedded into the lessons. The STEAM Activity Guide has RLA and Math Connections at the end of the lessons to show how they are

embedded. There is evidence of enrichment in the STEAM Activity Guide by integrating mathematical practice.

Materials provide scaffolds and guidance for just-in-time learning acceleration for all students.

- Materials provide some scaffolds and guidance for just-in-time learning acceleration for all students. However, some content for “Advanced Students” does not fall within grade-level or developmental expectations. The Teacher’s Textbook Matter and Properties Unit states, "Advanced students: Some attributes must be calculated using mathematical concepts. Examples could be surface area, volume, or density. Density=mass/volume, the volume of a prism=cross sectional area x length." Again, the Teacher’s Textbook Earth and Space Unit asks, "Advanced students: How does the structure of the Sun allow it to keep planets in orbit around it? Answer - It is very big and exerts a large gravitational force on the planets." These advanced concepts go beyond recommended acceleration for this grade level and do not include scaffolds or clear implementation guidance.
- Materials provide some support and resources for students ready to accelerate their learning; however, teacher guidance in this acceleration is only sometimes clearly explained. In the Teacher Textbook, in the section Matter and Properties, there is a section called Additional Hints. Under this section, the materials suggest that mini-experiment 3 is for advanced students. It also indicates that students should make a presentation with their results. Materials lack recommendations for just-in-time scaffolds to develop productive perseverance in learning.
- Materials provide acceleration for advanced students, but scaffolding and guidance could be more explicit. The Learn by Doing Scope & Sequence RTI materials provide alternative times for each lesson in the Learn by Doing Activity Reader. However, there needed to be evidence of alternative activities to offer scaffold and guidance for just-in-time learning. The Assessment generator has three levels of questioning intended for advanced students. There is no evidence of just-in-time students.

TPS Steam into Science Grade K

Indicator 7.2

Materials include a variety of research-based instructional methods that appeal to a variety of learning interests and needs.

1	Materials include a variety of developmentally appropriate instructional approaches to engage students in the mastery of the content.	M
2	Materials consistently support flexible grouping (e.g., whole group, small group, partners, one-on-one).	M
3	Materials consistently support multiple types of practices (e.g., modeled, guided, collaborative, independent) and provide guidance and structures to achieve effective implementation.	PM
4	Materials represent a diversity of communities in the images and information about people and places.	M

Partial Meets| Score 1/2

The materials partially meet the criteria for this indicator. Materials partially include a variety of research-based instructional methods that appeal to a variety of learning interests and needs.

Materials include a variety of developmentally appropriate instructional approaches to engage students in the mastery of the content. Materials consistently support flexible grouping (e.g., whole group, small group, partners, one-on-one). Materials inconsistently support multiple types of practices (e.g., modeled, guided, collaborative, independent) and provide some guidance and structures to achieve effective implementation. Materials represent a diversity of communities in the images and information about people and places.

Evidence includes but is not limited to:

Materials include a variety of developmentally appropriate instructional approaches to engage students in the mastery of the content.

- Materials include a variety of instructional approaches that are developmentally appropriate. As seen in the Learn by Doing STEAM Activity Reader, Idea boxes in the What is Energy? unit provide connection opportunities to the real world, using their senses to relate to energy, and model-revision strategies in Activity 4, Sunshade. The STEAM Activity Guide has various instructional approaches to engage students. The teacher does classroom demonstrations, and there are tasks where students use tools to measure and collect data and engage in collaborative learning activities.
- Materials engage students in the mastery of the content through various developmentally appropriate instructional approaches in the Learn by Doing STEAM Activity Reader. Chapter 2 includes teacher think-aloud in the Idea Boxes. Idea box three states, “Mind map the role that light plays in children's everyday lives.” The chapter also includes a classroom demonstration in Activity 2, when the teacher demonstrates an investigation that shows the behavior of light. The chapter also includes opportunities to problem-solve with teacher support when students design a sunshade in Activity 4. The chapter provides exploration with concrete and hands-on materials at the level of rigor for the course when students make noises with various

instruments to feel vibrations in Activity 5 and when feeling the change in temperature in Activity 7.

- Materials engage students in the mastery of the content through developmentally appropriate instructional approaches in the STEAM Activity Guide. The Natural Science: Push and Pulls Can Stop or Start or Change the Speed chapter includes opportunities for students to engage in inquiry-based learning activities to discover how magnets can move things.
- Materials engage students in the mastery of the content through various developmentally appropriate instructional approaches. In the Learn by Doing STEAM Activity Steam Reader, students examine the behavior of a light source by shining the light on opaque, transparent, and colorful objects. This experiment uses components of simple scientific investigations and tools that are age-appropriate.
- Materials engage students in the mastery of the content through various developmentally appropriate instructional approaches. In the Steam Activity Guide, the lesson suggests that the class go into the local park and observe if some plants are growing more rapidly. This type of lesson connects scientific concepts to the real world.

Materials consistently support flexible grouping (e.g., whole group, small group, partners, one-on-one).

- Materials consistently support flexible grouping—often in small groups, pairs, and whole classes. In the STEAM Activity Guide, there are many instances where the students are in pairs, small groups, and whole groups.
- Materials support a variety of instructional groupings in the STEAM Activity Guide. The Arts Integrated Lesson: Seeds has students working in small groups to explore lights and how they react to mirrors, cardboard, and wax paper. The Earth and Space Science/ELA Word Wall Activity has students work with partners to act out talking to the President about recycling. In the Amelia Rose Explores: Matter and Its Properties lesson, students work individually first, then in pairs or groups, to explore how all living things depend on living and nonliving things around them. In the Natural Science: Push and Pulls Can Stop or Start or Change the Speed chapter, the teacher demonstrates magnets, a whole group.
- Materials support a variety of instructional groupings in the Learn by Doing Activity Reader Book. The teacher reads the stories to the whole group. In Chapter 6, the teacher reads The Night Surprise to the group. Students work in small groups to complete Chapter 6, Activity 1, in which the students gain an understanding of the order of the planets by walking around a pretend sun. Chapter 5, Activity 5 allows students to work individually to write about their favorite object in the night sky.
- Materials consistently support flexible grouping. In the Learn by Doing Activity STEAM Book Chapter 3, Activity 5, the class will discuss cause and effect in whole group and mind map examples of cause and effect using force and push or pull examples. In the Teacher Textbook Tools Chapter, students are divided into pairs or small groups to learn the names of different tools and safety precautions.

Materials consistently support multiple types of practices (e.g., modeled, guided, collaborative, independent) and provide guidance and structures to achieve effective implementation.

- Materials inconsistently support multiple types of practices. For example, in How Do You Group Objects? Chapter 1, additional hints guide teacher modeling, guided practice, and working together and independently. These hints sometimes include these suggestions, but many times do not. Additionally, in the traditional lesson for “How Do You Group Objects?” There is only one

reference to a type of practice, and that is in the Additional Hints Section, which reads “As a teacher-led investigation begins with …” There are no other references to moving from modeling to guided to collaboration and no mention of guidance for how to achieve the implementation of these practices.

- Materials provide unclear guidance and structures to achieve effective implementation of multiple types of practice within the program. For example:
    - Materials provide Support Notes for Teachers in the Program Guide, giving some detail on how the program begins with the STEAM Activity Reader that teaches literacy with science. Materials indicate that teachers should use the textbook, which includes expository text, investigations, assessment materials, and literacy and math-connected challenges. Additionally, teacher guidance in the Program Guide provides an overview of each program piece, what is in each piece, and the sequence of materials.
    - While the Learn by Doing Steam Activity Reader includes idea boxes for practice during read-alouds, materials offer limited teacher guidance for implementation, including recommended time allotments for suggested practice activities. The section Introduction states, "Before you begin using the idea boxes, create some collaborative rules for discussion so that everybody gets a turn."
    - The Design Engineering Process provides general guidance for facilitating student discussion, stating "During the sharing phase, encourage the children to actively listen to other children and participate respectfully during discussions."

Materials represent a diversity of communities in the images and information about people and places.

- Materials represent diverse communities using images and information that are respectful and inclusive. The Learn by Doing STEAM Activity Reader represents diversity. There are different races and genders; one boy was in a wheelchair. The cover of the Learn By Doing STEAM Activity Reader shows an illustration of a diverse class. The cartoon students have multiple skin colors and genders, and one is in a wheelchair. The cartoon teacher is a male with brown skin. The same characters are found in the reader's stories, as well.
- Materials represent diverse communities using images and information that are respectful and inclusive. In the Name the Scientist lesson, students learn about Issac Newton, Mae Jemison, and Ynes Mexia. These scientists represent three different cultures and both genders. The Online Library of Scientists contains fact sheets for scientists from diverse backgrounds, including males, females, and multiple nationalities and ethnicities. Scientists include Alexander Graham Bell, Ernest Just, Isaac Newton, Jane Goodall, Katherine Johnson, Mae Jemison, Marie Daley, Mario Molina, Sally Ride, and Ynes Mexia. , Scientist Fact Sheet 1, students learn that Shirley Jackson was among the first African Americans to attend MIT. Scientists - Blackline Master K-8 has a chart with named scientists and their ethnicity. For example, the materials list Dr. Helen Rodriguez Trias under the header Latinos. There is a note to use this list to assign research to students.

TPS Steam into Science Grade K

Indicator 7.3

Materials include listening, speaking, reading, and writing supports to assist emergent bilingual students in meeting grade-level science content expectations.

1	Materials include guidance for linguistic accommodations (communicated, sequenced, and scaffolded) commensurate with various levels of English language proficiency as defined by the ELPS.	PM
2	Materials encourage strategic use of students' first language as a means to linguistic, affective, cognitive, and academic development in English.	DNM

Partial Meets | Score 1/2

The materials partially meet the criteria for this indicator. Materials partially include listening, speaking, reading, and writing supports to assist emergent bilingual students in meeting grade-level science content expectations.

Materials include some guidance for linguistic accommodations (communicated, sequenced, and scaffolded) but not commensurate with various English language proficiency levels as defined by the ELPS. Materials do not encourage strategic use of students' first language for linguistic, affective, cognitive, and academic development in English.

Evidence includes but is not limited to:

Materials include guidance for linguistic accommodations (communicated, sequenced, and scaffolded) commensurate with various levels of English language proficiency as defined by the ELPS.

- Materials include some guidance on linguistic accommodations for emergent bilingual students; however, the guidance does not correspond with various English language proficiency levels as defined by the ELPS. The Teacher Textbook includes support guidance for the teacher at the end of each lesson plan for "ELL (English Language Learners)." For example, in the Kindergarten lesson on Tools, the ELL guidance lists five suggestions for support. It includes "Ensure students understand adjectives…", "Have students think about words they can use to describe the different tools." and "Encourage students to think about prior experiences they have had in which they have thought about and discussed tools."
- The materials provide some linguistic accommodations but lack appropriate guidance. The materials do provide support for accommodations commensurate with the various levels of English language proficiency nor provide teacher guidance to support emergent bilingual students embedded throughout the lessons. The STEAM Activity Guide Teacher Edition includes limited ELL teacher guidance. Each lesson includes the suggested ELPS, yet none of the teacher guidance listed in blue text throughout the lessons identifies specific ELL supports or teacher guidance for linguistic accommodations. Materials do not provide support for emergent bilingual students in the Learn by Doing Activity Reader Teacher Edition.
- Materials include some teacher guidance for communication with emergent bilingual students, with the goal of creating comprehensible input. For example, in the Assessment Guide Teacher Edition, at the end of each lesson, lists ELL support. In the Kindergarten TEKS 1A assessment portion, ELL support only states, "Ensure that ELL students are taking as full a role as they are

capable of in group discussion." In the TEKS 1D, 7A, and 10A assessment information, the ELL support teacher guidance states, "ELL students are likely to need to add several new words to their science vocabularies as part of this exercise." Teacher guidance throughout the Assessment Guide Teacher Edition continues to be communicated in brief statements but does not include linguistic accommodations sequenced and scaffolded.

- Materials include some guidance for linguistic accommodations for English language learners. The Teacher Program Guide provides limited guidance for teachers to support emergent bilingual students. In the Support Notes for Teachers, Item 12, teacher guidance states," TPS provided for linguistic accommodations (communicated, sequenced, and scaffolded) commensurate with various levels of English Language Proficiency Levels as defined by the ELPS by insertion information at relevant points and creating test questions and answers aligned with the ELPS. Teachers are asked to use Archway, a phonics program, and dual language TPS glossary cards. The Teacher Program Guide also provides a list of the ELPS. However, further linguistic accommodations with detailed teacher guidance are not embedded elsewhere in the materials.

Materials encourage strategic use of students' first language as a means to linguistic, affective, cognitive, and academic development in English.

- Materials include few opportunities for use of students' first language; however, they do not support the linguistic, affective, cognitive, or academic development of English. Materials refer to emergent bilingual students' first language as a "foreign language." In the Teacher Textbook Project Based Lesson about the weather, a teacher tip states, "For ELL students, have a second card with the English word on one side, and the foreign language word on the reverse." Also, in the Teacher Textbook Earth and Space project-based lesson, under the ELL heading, it states, "In every lesson, have students add to a science word wall. Make the English and foreign language words (if appropriate) into flashcards. However, these limited experiences do not show encouragement of strategic use of the students' first language and do not include detailed support for linguistic, affective, cognitive, and academic development of English.
- Materials provide some English language learner accommodation guidance and do not include strategic use of the students' first language. The Teacher Textbook contains some suggestions for students learning English. The authors label this accommodation guidance in some lessons as "ELL." In some lessons, guidance is under the "Support" heading. For example, the Earth and Space investigation states, "Make sure all students can participate in the discussion using the English language they are comfortable with" under the Support heading. Materials do not acknowledge that students may need to use their native language as they continue to develop their English language proficiency.
- Materials do not encourage strategically using the student's first language. Materials do not include strategic teacher guidance, such as opportunities for structured and unstructured native language talk or opportunities to respond to open-ended questions in native language, and the cards do not have Spanish-to-English representations of vocabulary to encourage collaboration in dual languages.
- Materials do not acknowledge using students' first language to support academic development in English. The materials provide general linguistic support, but do not encourage strategically using existing language skills. For example, teacher guidance under ELL states, "Ensure students are following the explanation as you carry out the activity." Materials do not explain how teachers could ensure students follow the activity in English and no reference to or

acknowledgment of the student's native language and how it could support their understanding of the content.

- Materials do not encourage strategically using the student's first language in the textbook, activity guides, and reader book teacher materials, but only some references appear in other support materials. For example, in the STEAM Arts Project Guide K-12, Grade K, Heating and Cooling, teacher guidance under Tips for ELL Students states, "Some students may be more comfortable answering this in their native language; if so, encourage them to use hand gestures to the different parts that they are describing so that you can discuss the same stages." The materials primarily provide general linguistic support but do not encourage strategically using existing language skills in teacher guidance across all materials.

TPS Steam into Science Grade K

Indicator 7.4

Materials guide fostering connections between home and school.

1	Materials provide information to be shared with students and caregivers about the design of the program.	M
2	Materials provide information to be shared with caregivers for how they can help reinforce student learning and development.	M
3	Materials include information to guide teacher communications with caregivers.	PM

Partial Meets | Score 1/2

The materials partially meet the criteria for this indicator. Materials partially guide fostering connections between home and school.

Materials provide information to be shared with students and caregivers about the program's design. Materials provide information to be shared with caregivers for how they can help reinforce student learning and development. Materials include some information to guide teacher communications with caregivers.

Evidence includes but is not limited to:

Materials provide information to be shared with students and caregivers about the design of the program.

- The materials provide a Family/Caregiver Program Guide for grades K-8 that introduces the philosophy, research-based strategies, program components, assessment information, and a glossary for each grade.
- Materials provide information to be shared with students and caregivers about the program's design. According to the Family/Caregiver Guide, Program Introduction, the program has created a family guide that explains the research behind the program content. The Family/Caregiver Program Guide describes the program's philosophy in easy-to-understand language. For example, “Science is more than memorizing facts. It is a way of organizing and understanding the universe around us.”
- The Teacher Textbook provides an overview of the Family/Caregiver Guide For teachers, parents, and caregivers. This resource guides teachers on how to share information about the curriculum with families and caregivers. It also mentions how teachers can share the TPS glossaries with families. It states,” These are available to parents/caregivers digitally.” It also references other resources that can be shared, for example, “At Home, activities are also provided in each Student Textbook.”

Materials provide information to be shared with caregivers for how they can help reinforce student learning and development.

- Materials provide information for teachers to share with families/caregivers to help reinforce student learning and development. The Family/Caregiver Program Guide provides some resources and strategies for caregivers to reinforce student learning and development. It states,

"Parents/caregivers can help enforce some of the requirements of the TEKS at home. The work you can complete with their children will vary between assisting students studying new TEKS content and explaining how it applies to home life and practical assistance with safety measures."

- Materials provide information for teachers to share with families/caregivers to help reinforce student learning and development. The Teacher Textbook lessons include an "At Home" section with specific suggestions for home reinforcement. For example, the Force, Motion, and Energy Lesson states, "At Home: Encourage your child to play with a magnet at home. Investigating which materials are attracted to it, and how it will work through other materials."
- Materials provide digital resources that teachers can share with families to reinforce learning and development. According to the Family/Caregiver Guide Grades K-8, in the Program Introduction, "TPS Publishing Inc. provides parent digital access for families to all homework assignments and the lists of keywords and definitions. "TPS asks family members to review all new terms and definitions with students at home and identify how they are useful in their daily lives."
- The materials provide information for parents and caregivers about ways they can reinforce learning and development. For example, the materials include a document titled How Teachers and Caregivers are Supported by STEAM Content.and provides introductory information for caregivers as well as concrete ways caregivers can support learning at home. For example, it provides the strategy of "Ask the students to define specific words and demonstrate them with an action or an example in a sentence."

Materials include information to guide teacher communications with caregivers.

- The Teacher Program Guide contains some information about the resources available to caregivers but does not guide teacher communications with caregivers. The materials tell the teacher what is available and state that TPS provides the caregivers with access online and glossaries in the Family guide. The document also states that materials advise teachers to provide digital access to caregivers and that the Family Guide states how caregivers might communicate with teachers. However, materials lack information to guide teacher communications with caregivers.

TPS Steam into Science Grade K

Indicator 8.1

Materials include year-long plans with practice and review opportunities that support instruction.

1	Materials are accompanied by a TEKS-aligned Scope and Sequence outlining the order in which knowledge and skills are taught and built into the course materials.	M
2	Materials provide clear teacher guidance for facilitating student-made connections across core concepts, scientific and engineering practices, and recurring themes and concepts.	M
3	Materials provide review and practice of knowledge and skills spiraled throughout the year to support mastery and retention.	PM

Partial Meets | Score 1/2

The materials partially meet the criteria for the indicator. Materials include some year-long plans with practice and review opportunities that support instruction.

Materials are accompanied by a TEKS-aligned Scope and Sequence outlining the order in which knowledge and skills are taught and built into the course materials. Materials provide clear teacher guidance for facilitating student-made connections across core concepts, scientific and engineering practices, and recurring themes and concepts. Materials provide some review and practice of knowledge and skills but lack spiraling through the year to support mastery and retention.

Evidence includes but is not limited to:

Materials are accompanied by a TEKS-aligned Scope and Sequence outlining the order in which knowledge and skills are taught and built in the course materials.

- The materials include a TEKS-aligned Scope and Sequence in the Teacher Support Guide. The *Teacher Textbook* contains the same Scope and Sequence in the Teacher Support Guide in the Tools section. The online teacher support under the Kindergarten Scope and Sequence lists all of the TEKS for each unit. The *Teacher Textbook's* Scope and Sequence includes units with summaries, the number of class periods to complete the unit, and the aligned TEKS. For example, in Unit 2 – Matter and Energy, the TEKS K.6.A, Scientific and Engineering Practices (SEPs), 21 different TEKS state that the skills are covered over eight class periods with three days for reteaching and revision and where the materials resources are found. The online teacher support under the "Kindergarten Scope and Sequence" lists all the TEKS for each unit.
- Materials suggest sequencing with the pacing guide in the "Teacher Support" section. The "Pacing Plan/Year Planner" has a calendar of dates to complete each lesson and includes guidance on reteaching and revision. For example, the unit on "Matter" will take place over eight class periods with three lessons for reteaching and revision. The TEKS listed for the lessons are referenced in the textbook material.
- Materials suggest vertical alignment of content across grade levels. Vertical alignment is included at the beginning of every chapter but does not vertically align above and beyond the grade level.
- Materials are accompanied by online sequencing guides in "Texas Proclamation 2024 – STEAM into Science – Kindergarten TEKS Correlations." The document lists the TEKS sequentially and identifies where that standard is taught in the materials with an accompanying link.

TPS Steam into Science Grade K

Materials provide clear teacher guidance for facilitating student-made connections across core concepts, scientific and engineering practices, and recurring themes and concepts.

- Materials provide teacher guidance for facilitating student-made connections with prior experience and background knowledge across core concepts, scientific and engineering practices, and recurring themes and concepts. Materials include TEKS 1-5 Content Guide, which shows how recurring themes and concepts are spiraled throughout different lessons. For example, TEKS 5B is taught in Lessons 10B, 9A, 9B, 8A, and 8B, according to the added document.
- The materials include an "Essential Content Guide" in the *Learn by Doing STEAM Activity Reader Book Teacher Edition.* This guide contains the chapter information and the content taught across Science, Math, and English language arts. For example, chapter 2 is about energy, light, and shadows. In addition, it contains design engineering, counting and estimation, simple addition, communication of results, and vocabulary.
- Similarly, chapter one also contains design engineering. Materials provide questions for teachers to ask and possible misconceptions to help support teachers in making connections across the unit. For example, in the *Teacher Textbook*, a common misconception noted in the "Earth and Space" section describes how weather has a different meaning than climate. The lesson also includes ELL support. For example, "Encourage students to use language they find accessible for their glossary."
- Materials provide teacher guidance for facilitating connections with content in future grade levels. It states that future study will build upon the work of this standard and identifies the aligned standards in grades 1 through 5. The *Teacher Textbook* includes a vertical alignment under the Tools section, taught at the beginning of the year—the Kindergarten TEKS for science and the vertical alignment for the TEKS for grades 1 through 5. There is a vertical alignment at the beginning of every chapter in the *Teacher Textbook*.
- Materials include recurring concepts in scaffolding. "Scaffolding" is found in the *Teacher Textbook* at the beginning of each lesson's "Tools" section. The "Scaffolding" outlines how the current lesson/TEKS correlate to future TEKS in grades 1 through 5. The material did not provide information that explicitly connected recurring themes. The Scope and Sequence and the pacing/year planning both offer units for science concepts, for example, "Scientific and Engineering Practices," "Matter and Energy," and "Force, Motion, and Energy." These units do not show any recurring themes within the grade level.
- Materials provide a connection across the curriculum with activities to integrate math and literacy. However, there needs to be evidence of connecting core concepts.

Materials provide review and practice of knowledge and skills spiraled throughout the year to support mastery and retention.

- While materials include some practice of knowledge and skills, particularly in student materials, there is limited evidence of spiraling previously taught content throughout the year to support mastery and retention. The Pacing Calendar/Year Planner specifies dates for "revision, assessment, and reteach" after each unit. Neither the Scope and Sequence nor Pacing Calendar references spiraled TEKS for review or core concepts for reteaching.
- Materials provide review and practice opportunities in the *Learn By Doing STEAM Activity Reader Book – Kindergarten Student Edition* to support mastery and retention. For example, in

Chapter 1, The World Around Us, six different activities promote mastery and retention of the content.

- Materials include project-based lessons incorporating multiple standards within an investigation for review and practice. For example, the project-based lesson Light follows Force, Motion, and Energy and has multiple standards. While these project-based lessons allow for some review and practice, materials lack intentional and detailed spiraling to support mastery and retention.
- The Student Textbook offers homework to support review and practice of current knowledge and skills but lacks spiraling of previously taught content.

TPS Steam into Science Grade K

Indicator 8.2

Materials include classroom implementation support for teachers and administrators.

1	Materials provide teacher guidance and recommendations for the use of all materials, including text, embedded technology, enrichment activities, research-based instructional strategies, and scaffolds to support and enhance student learning.	M
2	Materials include standards correlations, including cross-content standards, that explain the standards within the context of the grade level.	M
3	Materials include a comprehensive list of all equipment and supplies needed to support instructional activities.	M
4	Materials include guidance for safety practices, including the grade-appropriate use of safety equipment during investigations.	M

Meets | Score 2/2

The materials meet the criteria for this indicator. Materials include classroom implementation support for teachers and administrators.

Materials provide teacher guidance and recommendations for the use of all materials, including text, embedded technology, enrichment activities, research-based instructional strategies, and scaffolds to support student learning. Materials include standards correlations, including cross-content standards, that explain the standards within the context of the grade level. Materials include a comprehensive list of all equipment and supplies needed to support instructional activities. Materials include guidance for safety practices, including the grade-appropriate use of safety equipment during investigations.

Evidence includes but is not limited to:

Materials provide teacher guidance and recommendations for the use of all materials, including text, embedded technology, enrichment activities, research-based instructional strategies, and scaffolds to support and enhance student learning.

- The materials include a Teacher Program Guide to introduce the program, describe program components and online materials, provide an online navigation guide, provide support notes for teachers, describe the pedagogy, Texas Essential Knowledge and Skills (TEKS), Limited English Proficiency Standards (LEPS), and describe the engineering design process of Define, Assess, Plan, Implement, and Communication (DAPIC).
- The materials are organized to facilitate ease of implementation and use. The *Teacher Textbook* contains an overview of the components, similar to the Teacher Program Guide. When the lessons begin, an overview guide lists the TEKS taught, scaffolding information, objective, and misconceptions. Next, the lesson plan lays out the time that will be required, the materials needed, and the time estimation for each activity.
- The materials include a *Learn by Doing STEAM Activity Reader Kindergarten Teacher Edition*. This book provides reading guidance, comprehension skills, and support for creating and editing drafts. It also includes teacher guidance for activities, vocabulary, the scientific method systems, the engineering design process, and safety in the classroom.

- The materials include an Online Library – Interactive Assessment Software Tool. The assessment Generator offers assessments to be created online to support planning scaffolds of instruction and enhance student learning.

Materials include standards correlations, including cross-content standards, that explain the standards within the context of the grade level.

- The materials include a STEAM Activity Guide Teacher Edition incorporating science, technology, engineering, art, and math cross-content connections. Each activity lists the science standards aligned to that lesson. However, it does not list the reading or math standards. Helicopter Construction lists the science standards K.6, K. 7, K. 8A, and K.8B. There are no math or reading standards named.
- The materials include a STEAM Activity Guide Teacher Edition incorporating science, technology, engineering, art, and math. The Word Wall Activities list the science standards aligned to that lesson. It also names the ELA/Literacy Connections and Mathematics Connections but does not identify the aligned reading or math standards. “The Essay” lists science standards K.12A and K.12B. The materials also list five ELA/Literacy connections and three mathematics connections, but the specific TEKS are not identified.
- The materials include science standards correlations for lesson units, lessons, and activities. The Kindergarten Scope and Sequence consists of the unit, TEKS, and a textbook reference of where those can be found. The lesson contains math and literacy activities but does not include standards for math and literacy activities. For example, the Scope and Sequence for Unit 2 consist of TEKS 6(A), and the textbook reference is *Teacher Textbook* pg. 61, How Do You Group Objects?
- The materials include cross-content standards for ELA, Math, and Social Studies. The Essential Content Guide in the *Learn by Doing STEAM Activity Reader Book Teacher Edition* contains the chapter information and the content taught across science, math, and English language arts. For example, chapter 2 is about energy, light, and shadows. In addition, it contains design engineering, counting and estimation, simple addition, communication of results, and vocabulary. Similarly, chapter one also contains design engineering.
- The materials include each lesson’s Science and Engineering Process (SEP) content standards. The TEKS for that lesson are listed in the *Teacher Textbook* on the top of each page. For example, in the lesson “How Do You Group Objects 1,” the only TEKS listed is SEP 6.A at the top of pages 49–60. Also, in the *Student Textbook,* the TEKS for that lesson is listed at the top of each page. For example, the TEKS listed in the lesson “Scientific and Engineering Practices'' are 4.A and 4.B at the top of the page from pages 18–28.

Materials include a comprehensive list of all equipment and supplies needed to support instructional activities.

- Materials provide a “STEAM into Science Grade Kindergarten Textbook Kitting List,” which alphabetically lists all required materials to complete activities and investigations. However, it is unclear if the materials include these items or if they must be purchased by the Local Education Agencies (LEA).
- Materials are listed for each lesson. The *Teacher Textbook* has each part of the lesson with a list of materials needed for that section. For example, in the “Tools” lesson under instruction, there is a list of materials necessary for the instruction part of the lesson. Following along in the same lesson, under the Investigation section, there is another list of materials needed for the

investigation part. In Force, Motion, and Energy, the Magnets investigation lists “a decorative magnet, or a magnetic toy that students are familiar with from the classroom and a selection of magnets of different shapes and sizes.”

- Materials are listed for each lesson. In the *Teacher Textbook*, with each part of the lesson, there is a list of materials needed for that section. For example, In the “Tools” lesson under instruction, there is a list of materials required for the instruction part of the lesson. Following along in the same lesson, under the Investigation part of the lesson, there is another list of materials needed for the investigation part.

Materials include guidance for safety practices, including the grade-appropriate use of safety equipment during investigations.

- Materials include guidance for safety practices—for example, the *Scientific, Investigation, and Reasoning Handbook – Grade K*. The first lesson, “Working Safely and Responsibly,” reviews how to behave safely in science lessons. The *Learn By Doing STEAM Activity Reader Kindergarten Teacher Edition* includes a section titled “Safety in the Classroom.” It directs teachers to follow state and school safety guidelines. The *Learn By Doing STEAM Activity Reader Book Kindergarten Teacher Edition* has a paragraph about safety on page 8. It is a general reminder to demonstrate safe practices described by Texas Education Agency (TEA) and follow school and district guidelines before conducting any investigation.
- The materials provide student guidance for safety practices and grade-appropriate use of safety equipment during investigations. In the Student Assessment Guide Grade K, pg. 40–41, the lesson is over Working Safely and Responsibly. During the lesson, students discuss safety and learn how to use safety goggles.

TPS Steam into Science Grade K

Indicator 8.3

Materials provide implementation guidance to meet variability in program design and scheduling.

1	Materials support scheduling considerations and include guidance and recommendations on required time for lessons and activities.	M
2	Materials guide strategic implementation without disrupting the sequence of content that must be taught in a specific order following a developmental progression.	M
3	Materials designated for the course are flexible and can be completed in one school year.	M

Meets | Score 2/2

The materials meet the criteria for this indicator. Materials provide implementation guidance to meet variability in program design and scheduling.

Materials support scheduling considerations and include guidance and recommendations on required time for lessons and activities. Materials guide strategic implementation without disrupting the sequence of content that must be taught in a specific order following a developmental progression. Materials designated for the course are not flexible but can be completed in one school year.

Evidence includes but is not limited to:

Materials support scheduling considerations and include guidance and recommendations on required time for lessons and activities.

- Materials include support for scheduling considerations, guidance, and recommendations on required time for lessons and activities. For example, the Texas Proclamation 24 Scope and Sequence provides minute suggestions for lessons and class period suggestions. This information is available in the online resources. In the Online Library, the Teacher Support Learn By Doing Scope and Sequence RTI Kindergarten states that it provides an “alternate scope and sequence for Response to Intervention (RTI) students.” Within this document, there is a “recommended duration of lesson/minutes.”
- The materials provide guidance and recommendations on the required time for lessons and activities. The Teacher Resource Guide includes a Pacing Plan/Year Plan. The guide only suggests what days to teach the units. The *Teacher Textbook* has Scope and Sequence and a pacing calendar available. The pacing calendar takes into account holidays and potential teacher work days.
- Materials include pacing suggestions for the grade level. For example, in the *Teacher Textbook,* pg. 60, there is guidance for the number of class periods required, time, and how many lessons are needed for reteaching and revision.

Materials guide strategic implementation without disrupting the sequence of content that must be taught in a specific order following a developmental progression.

- Materials guide strategic implementation. For example, the *Learn by Doing STEAM Activity Reader Book Teacher Edition* contains an essential content guide. The guide shows that the material begins with Unit 1, “The World Around Us,” in which students learn safe science

procedures about matter and physical properties. This builds into other units, such as Unit 2, “Energy, Light, and Shadows,” and Unit 8, “Spot is Alive,” in which students apply the skills learned in Unit 1.

- Materials guide sequencing. For example, in the Online Resources, the Scope and Sequence illustrate that the units build upon each other in a specific sequence. Unit 1 begins with scientific and engineering practices, which will be applied throughout the other units.
- The materials contain lessons that build on each other. The first unit is the “Tools Unit.” This unit introduces the tools used for the investigations in the following lessons.

Materials designated for the course are flexible and can be completed in one school year.

- Materials suggest ways to complete the curriculum in one school year. For example, in the Online Resources, the Scope and Sequence illustrate the materials can be achieved in 150 class periods of 50 minutes each.
- The materials provide alternative pacing for Response to Intervention (RTI) students in the Teacher Support Learn By Doing Scope and Sequence RTI.
- Materials provide a Pacing Plan/Year Planner with a review of how it would fit into a “typical” single school year. The Pacing Plan/ Year Planner includes a complete August-May view reflecting how the course fits within a single school year. The STEAM Activity Guide includes a “vignette” activity and provides a day-by-day description of each activity. The breakdown informs teachers’ decisions to prioritize lesson components or adjust due to time constraints.

TPS Steam into Science Grade K

Indicator 9.1

The visual design of materials is clear and easy to understand.

1	Materials include an appropriate amount of white space and a design that supports and does not distract from student learning.	No
2	Materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting.	No
3	Materials include digital components that are free of technical errors.	Yes

Not Scored

The visual design of materials is clear and easy to understand.

Materials do not include an appropriate amount of white space and a design that supports and distracts from student learning. Materials do not embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. Materials include digital components that are free of technical errors.

Evidence includes but is not limited to:

Materials include an appropriate amount of white space and a design that supports and does not distract from student learning.

- Materials do not include an appropriate amount of white space and a design that supports and does not distract from learning. In the Learn by Doing Steam Activity Reader Book, digital materials are small and only zoom to 300%. Materials are too small to read at 100% on a personal computer and require zooming. When the user clicks on the material, it automatically zooms in to 250% or out to 100%. There is a slider to allow adjustment between 100% and 300%; however, it could be more user-friendly, and some students must zoom in more than the material allows.
- Materials do not include links or guidance to show what is next or when to stop within a chapter or section. Chapters organize the STEAM Learn By Doing Activity Reader Student Edition. However, the chapter name does not always identify the topic, and the topic is not identified elsewhere. For example, Chapter 8 is titled Sharing Day and Chapter 9 is titled Pet Babysitter.
- The Student Textbook has a good amount of white space and a design that aids student learning. The Properties unit lists the TEKS to guide student expectations, provides a unit title, and highlights each section with a subtitle. The pictures and words are clear and large enough to read easily. The Properties section starts with The Science, then Key Words, then an Investigation, followed by What Have You Learned and Test Yourself. However, materials for kindergarten are more word-based than picture-based and increase distractibility for non-readers.

TPS Steam into Science Grade K

Materials embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting.

- Materials do not embed age-appropriate pictures and graphics that support student learning and engagement without being visually distracting. The Student Textbook uses many small clipart icons but lacks real-life photographs to enhance student learning. Specifically, the Energy unit has no real-life photos, making it challenging for children to understand an abstract scientific concept. The Magnets section has a flat, 2D rectangle that is half blue and half red. While there is text above this image labeling it a “magnet,” it is not an image most kindergarteners would be familiar with.
- The STEAM Activity Guide has few pictures or graphics supporting student learning and engagement. In The Story - Seeing More Clearly, the materials include one picture on the two-page story. The picture is a drawing or clip art image of a boy holding a flashlight in a cave. The picture takes up the majority of the page and does not provide context to the story.
- In the STEAM Learn By Doing Activity Reader Student Edition, most graphics are clipart, not photographs, to support student learning. While they are age-appropriate and not visually distracting, students need to see scientific representations and real photographs, rather than clipart. For example, in Chapter 1, Activity 2, students identify hard and soft things. The items pictured are all clipart: a leaf, rock, wood, balloon, feather, glass, dog, pillow, and hammer.
- The materials include glossary vocabulary cards with clear, authentic images and graphics supporting student learning new words. In the Online Library, Blackline Master, there is a clip art image of the sun for the word *sun*. The materials do not include an authentic photograph of the sun so that the students understand that the sun is a star and not a yellow circle.

Materials include digital components that are free of technical errors.

- The materials include digital components that are free of technical errors. The STEAM Activity Guide includes activities that are free of inaccurate content materials or information. The materials are also free of wrong answers to questions asked. For example, the Word Wall Read Aloud Activity “A Beam of Light” includes accurate information about how light works to help us see and that some objects allow light to pass through them and others do not.
- The materials are clear of errors in the STEAM Activity Guide. For example, in the Learn by Doing STEAM Activity guide Chapter 1, teacher digital materials are free of spelling, grammar, and punctuation errors. In the Teacher Textbook, Tools, teacher digital materials are free of inaccurate content materials or information. Resources include content-related text, assignments, and sample responses. The materials provided correct answers with appropriate teacher guidance.

TPS Steam into Science Grade K

Indicator 9.2

Materials are intentionally designed to engage and support student learning with the integration of digital technology.

1	Materials integrate digital technology and tools that support student learning and engagement.	No
2	Materials integrate digital technology in ways that support student engagement with the science and engineering practices, recurring themes and concepts, and grade-level content.	No
3	Materials integrate digital technology that provides opportunities for teachers and/or students to collaborate.	No
4	Materials integrate digital technology that is compatible with a variety of learning management systems.	No

Not Scored

Materials are not intentionally designed to engage and support student learning with the integration of digital technology.

Materials do not integrate digital technology and tools that support student learning and engagement. Materials do not integrate digital technology in ways that support student engagement with science and engineering practices, recurring themes and concepts, and grade-level content. Materials do not integrate digital technology that provides opportunities for teachers and/or students to collaborate. Materials do not integrate digital technology that is compatible with a variety of learning management systems.

Evidence includes but is not limited to:

Materials integrate digital technology and tools that support student learning and engagement.

- Materials do not integrate technology and tools that support student learning. Although the materials include online assessments in the Interactive Assessment Tool, materials do not integrate digital technology and tools that support student learning and engagement. The materials do not include opportunities for learning through video and audio clips, web links, photos, games, simulations, or data sets.
- The online platform contains a Texas Proclamation 24 Science - Kindergarten Tools section. It is a series of photographs, such as an aquarium, straws, and a clay bowl.
- The program provides a Reader Activity Library and an Assessment Generator. Materials also include information that states students have the ability to take assessments online. However, reviewers are unable to review this component.

Materials integrate digital technology in ways that support student engagement with the science and engineering practices, recurring themes and concepts, and grade-level content.

- Materials do not integrate digital technology to support student engagement with science and engineering practices, recurring themes and concepts, and grade-level concepts. After review of the Learn by Doing Steam Activity Guide, Student Textbook, and Steam Activity Guide materials

did not integrate digital technology to support student engagement. In the Teacher Textbook, chapter Earth and Space lesson, teacher guidance requests an optional still or video image of day or night and seasonal changes. Materials do not include these suggested images. Later in the unit, students talk about the sky. Materials direct teachers to provide a video or still image of the sun so that the students do not look directly at the sun. The lesson does not reference a location for the video or still image.

- The lesson plan in the Teacher Textbook for the chapter Organisms and Environment, states, "Find online video clips of plants and animals so that students can observe them.". The materials do not include these clips and require the teacher to search for appropriate videos that meet the grade-level technology.
- Although the materials include online assessments in the Interactive Assessment Tool, they do not integrate digital technology to support student engagement with the science and engineering practices, recurring themes and concepts, and grade-level content. Materials do not include interactive resources for instruction, such as videos or interactive labs.

Materials integrate digital technology that provides opportunities for teachers and/or students to collaborate.

- Materials do not integrate digital technology that provides opportunities for teachers and/or students to collaborate. Although the materials include online assessments in the Interactive Assessment Tool, they do not allow teachers and/or students to collaborate. The assessments are designed to be completed individually after they are printed in paper-based form by the teacher. Materials indicate all online resources are separate links and not interconnected, thus preventing digital collaboration among students and teachers.
- The materials do not recommend platforms, links, or resources on how those digital suggestions can be accessible to students and teachers. Materials do not provide suggestions or resources for collaboration between teachers and students.

Materials integrate digital technology that is compatible with a variety of learning management systems.

- Materials do not integrate digital technology that is compatible with a variety of learning management systems. Materials do not indicate which operating systems they are compatible with. However, the online materials are accessible via a computer and a mobile device.

TPS Steam into Science Grade K

Indicator 9.3

Digital technology and online components are developmentally and grade-level appropriate and provide support for learning.

1	Digital technology and online components are developmentally appropriate for the grade level and align with the scope and approach to science knowledge and skills progression.	No
2	Materials provide teacher guidance for the use of embedded technology to support and enhance student learning.	No
3	Materials are available to parents and caregivers to support student engagement with digital technology and online components.	No

Not Scored

Digital technology and online components are not developmentally and grade-level appropriate and do not provide learning support.

Digital technology and online components are not developmentally appropriate for the grade level and align with the scope and approach to science knowledge and skills progression. Materials do not provide teacher guidance for the use of embedded technology to support and enhance student learning. Materials are not available to parents and caregivers to support student engagement with digital technology and online components.

Evidence includes but is not limited to:

Digital technology and online components are developmentally appropriate for the grade level and align with the scope and approach to science knowledge and skills progression.

- Digital technology and online components are not developmentally appropriate for grade K students. Materials use terminology that is not developmentally appropriate. For example, In the Assessment Generator, Kindergarten, for TEKS 13D, there are four questions available. However, the materials continue to use developmentally inappropriate language. For example, Database 4944, Question 4 asks, “What word means to mate and produce offspring?” The answer choices are *parent, reproduce, inherit,* and *characteristic*. Some tasks students complete are not developmentally appropriate. The only digital technology and online components included for students are Online Libraries of print-based content and resource materials. Libraries included are Assessment Tools, Reader Activity Books, Student Reasoning Library, Blackline Master Library, STEAM Library, and the Digital Frog Library. There is an interactive assessment tool but no other interactive primary components. For example, in the Learn by Doing Steam Activity Reader Student Edition Chapter 8, Spot is Alive, the second page of the story uses complex sentence structure in the student reading matter; “Most living things can move; for example, butterflies fly. Living things have babies that grow up; for example, ducks have ducklings that grow up. Trees respond to their surroundings and change with the different seasons. Materials do not provide a developmentally appropriate text-to-speech feature for grade K students.

TPS Steam into Science Grade K

Materials provide teacher guidance for the use of embedded technology to support and enhance student learning.

- Materials do not provide teacher guidance for the use of embedded technology. For example, materials provide a Crosscutting Library of photographs. The photograph library includes general topics like systems and models, weather protection, and trees. When each topic is selected, the teacher is directed to a Google Photos page of those images. The “trees” link takes you to a page with a collection of 47 trees on the Google Photos link. However, materials do not provide teacher guidance for embedding the online photo library within lessons and assessments to enhance student learning.
- Materials provide a video for teacher guidance on the interactive software tool and the assessment generator. Materials do not provide additional videos for resources such as the intervention focus tutorial. Materials do not include step-by-step instructions for setting up and using technology. Materials do not provide troubleshooting tips for common problems teachers may encounter.

Materials are available to parents and caregivers to support student engagement with digital technology and online components.

- Materials do not provide parent and caregiver resources for supporting student engagement with digital and online components. Materials state, "TPS Publishing Inc. provides parent digital access to family to families for all homework assignments, and to the list of keywords and definitions." Materials state that the Family/Caregiver Guide provides guidance for parents and caregivers about how to use digital materials. However, the Navigation Guide is designed for teachers, not families. The Navigation Guide shows how teachers can access the textbooks, Assessment Database, Interactive Assessment Tool, and Intervention Focus Tutorial. The Family and Caregiver Guide includes information about how to navigate textbooks and the Assessment Generator. The guide does not include how to support student engagement with digital technology.
- According to the Teacher Program Guide, TPS provides caregivers with digital access to homework materials, TEKS and ELPS information on assignments to share and discuss with students, and access to TPS glossary cards, which caregivers can review with students. Materials lack teacher guidance in setting up digital access to caregivers.